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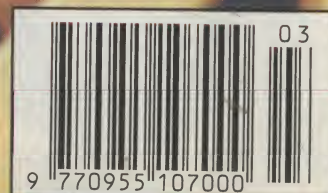
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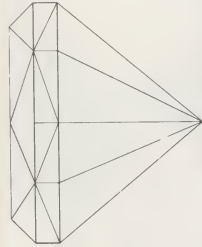
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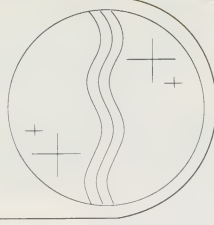


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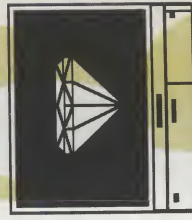
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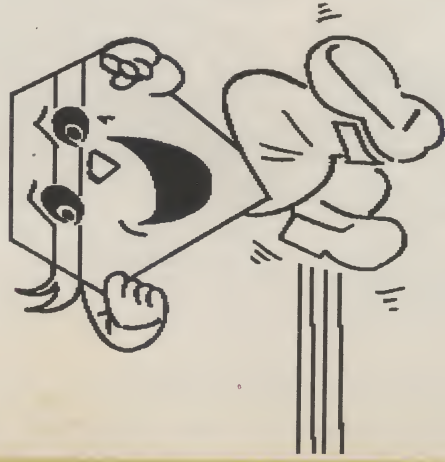
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# AMIGA USER

## INTERNATIONAL

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# THE AMIGA DIMENSION

### Dear *AUI* Reader,

Michael cannot move any part of his body but his eyes. He has, since birth, suffered from cerebral palsy. Now, a special speaking word processor is being developed to enable him to communicate by controlling it with his eyes.

Imagine the frustration of a normal intelligence locked up in such a personal prison and imagine too, the sense of joyous escape that will come from that simple means of technological communication.

It makes me feel both delighted and a little proud even to be indirectly involved with a technology that can offer such marvellous freedom to someone who would otherwise never achieve it.

Of course, the darker side of the matter is that in previous ages a baby born with cerebral palsy would just not have survived long and it is due probably, in no small degree, to technology that sufferers like Michael today exist and so need help.

Nevertheless, the technology being employed to aid Michael is an example of the truth that it is not technology that is good or bad but the use to which it is put. And that applies also to the electronically-guided missiles which, as I write, are exploding in Iraq and also in Israel.

And it is, fundamentally, the same technology - the microchip - which lets you, the Amiga user, burst out, as we see from our special feature on graphics in this *AUI*, to reach standards of creativity that a Leonardo da Vinci would have admired. As someone fascinated by the technology of his day, Leonardo would undoubtedly have loved the Amiga!

I spoke recently with an advertising art director who complained how much work it had been to create, by hand, illustrations of people in a view from directly above. When I pointed out that was exactly the kind of activity for which ray-tracing on the Amiga would have been ideal, he regarded me with a mixture of disbelief and depression. He clearly thought I was an out-to-lunch computer nut or nastily suggesting that a technological horror box would put him out of a job.

An eye-controlled word proc-

essor . . . guided missiles . . . personal creativity . . . technofear and unemployment . . . technology is permeating almost every aspect of our lives (and that can even include the digitally-connected telephone interrupting a passionate scene in the bedroom - or too, the damned answering machine that should have been switched on to allow the intruding phone to be ignored. A certain lady please note!).

That all-encompassing role of technology - some of it good, some of it terrible - brings me to an irate letter I received from an *AUI* reader who was otherwise very satisfied with the magazine. He accused me of getting away from the matter with which he thought that *AUI* should only deal - the Amiga. He angrily complained that I had been getting into "Politics" because in January's *AUI*, I pointed out and severely criticised Britain's disastrous record of investment, under science graduate, Prime Minister Thatcher, in research and development, especially in electronic technology.

I still believe that our record is not only indefensible from the practical and even profitable viewpoint, especially for an administration that claims to encourage industry and commerce, but also deeply shaming for a nation that once led the world in technological development. To my mind, any government, of whichever party, that, as in the last decade, neglects or actually reduces the finance available for, and the encouragement of, technological progress, should be regarded as state vandals and either be forced to change their ways or ejected from power. That, for me, is not a matter of politics but of national commonsense.

So it is too, in my view, unpolitical commonsense humanity to say that the purposes to which we put our technology should be forcefully aimed, not at destroying Iraq and Israel, but at more freely releasing Michael and the creativity within you, the Amiga User.

Sincerely yours,  
**Antony Jacobson,**  
Managing Editor and  
Publishing Director

## ADVERTISERS DIRECTORY

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## ELECTRONIC MAIL GROWS

The electronic mail (E-mail) software industry is a rapidly growing industry. Electronic messaging eliminates the need for much paper-based correspondence. This is believed to provide reduced costs, increased productivity and increased speed of response.

Originally, e-mail systems were host-based and were exclusively for in-house use. These e-mail systems rapidly developed into office automation systems, and the market began to segment. With the rapidly increasing deployment of microcomputers and their local area networks (LANs), e-mail software was developed for these decentralised computing systems. Like other PC software, e-mail software on Microcomputers developed many functional and ease of use facilities that were not available on host-based systems.

As customers demand interconnectivity and interoperability, the industry is moving in two directions. One is to reinforce proprietary, hardware-dependent standards, such as SNADS from IBM. This is a vendor-driven strategy to protect its customer base. The other direction is customer-driven and is a move toward OSI compliant, hardware independent standards. Specifically, this means implementation of the X.400 in-

ternational messaging standard.

Total world e-mail software revenues in 1989 reached \$686.3 million, a 44.9 percent increase over 1988 revenues. Worldwide revenues will continue to expand, reaching over \$6.0 billion by 1996. In 1989, the U.S. represented 57.4 percent of these revenues.

One major competitive development is a likely market shakeout in the PC-based market. The intense price competition makes it difficult to fund product development and to make a profit. Already the market has segmented into low price, high-volume software packages and higher-priced software with value-added service.

The full development of the private e-mail market is discussed in a new report titled 'PRIVATE ELECTRONIC MAIL MARKET' published by the Market Intelligence Research Corporation (MIRC).

**Contact: MIRC Europe, 54 rue Vandenhoven, 1150 Brussels, Belgium. Tel: +32 (2) 762 2781.**

## MANs NEED EVEN MORE FIBRE

The first wave of fibre technology brought fibre to the long distance telephone networks. Now fibre has penetrated the local loop, sorry loop, the 'last mile' of the public telephone network, bringing fibre all the way to homes and businesses, say MIRC - the Market Intelligence Research Corporation.

The drive toward fibre optics in the local loop has been accelerating over the years, and in the future, all local telephone networks will be fibre.

The market for private local-area fibre networks is expected to grow from \$55 million in 1986 to about \$1 billion by 1996. Private local-area networks are being established with increasing frequency, and appear in a wide range of configurations, from point-to-point using fibre optic modems, to networks.

Just as local-area networks have become important to thousands of companies, fibre-based metropolitan area networks (MANs) hold much promise for the 1990s. Companies are now requiring connectivity between networks operating across cities. The market for fibre-based MANs is expected to hit \$1.2 billion by 1996, from an estimated \$30 million in 1986. The fibre local loop equipment market, which is the most lucrative, is expected to grow into a \$3.6 billion industry by 1996.

Initially, fibre optics was developed for use in long distance telephone communications. Before 1986, the long distance market had been the major component of fibre optic cable and equipment sales. This initial application proved a phenomenal success, and in a short period fibre optic technology has been refined and improved, making it practical for a wide range of short distance applications.

The market for short-haul fibre optics is expected to accelerate as fibre installations move down the networking chain from the long-haul carriers into local, private and even desktop networks. In the coming years, fibre optic technology will increasingly penetrate into the local communications networks.

The full development of the short haul fibre optics market is discussed in a report, SHORT-HAUL FIBRE OPTIC NETWORK APPLICATIONS, published by Market Intelligence Research Corp. (MIRC).

**Contact: MIRC EUROPE, 54 rue Vandenhoven, 1150 Brussels, Belgium. Tel: +32 (2) 762.2781.**

## KYOCERA'S SHARED 68020 LASER

With printer sharing increasingly becoming a way for companies to spread costs in IT investment, Kyocera is introducing two new printers with multi-tasking capabilities as standard.

The F-800T is a compact laser printer intended for wordprocessing applications. Built around Kyocera's 8ppm engine with dual component toner system, the printer can reliably output high resolution text.

A manual paper feed mounted on the 150 sheet paper tray accepts non-standard paper sizes.

Standard memory is 512K which can be upgraded by the user when required. Optional RAM allows on-board memory to be progressively raised to a maximum of 4.5MB for image and vector graphic processing.

Both printers include 79 resident bit mapped fonts; 3 dynamic fonts for scaling; 39 resident bar code formats; IC card reader; 7 emulations, including Laserjet mode.

Prices for the F-800T and F-1200s are £1,350 and £2,550 respectively. The F-800T additionally comes with 1 year on-site maintenance.

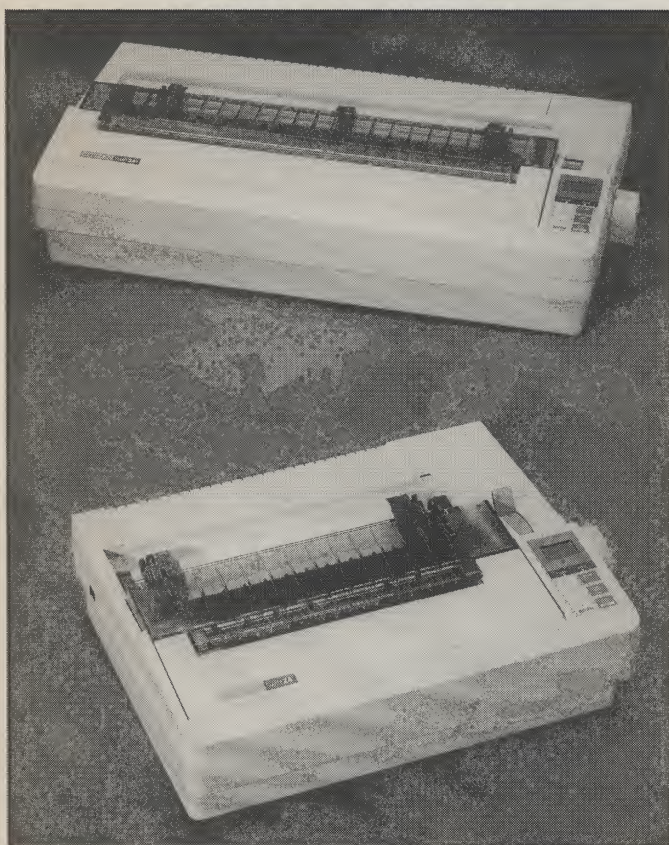
**Contact: Kyocera (0734) 311500.**



**The Kyocera F-1200S has a 68020 chip and 32 bit CPU.**



## CITIZEN'S 24X



**Citizen have launched the Swift 24X a 136 column, 24 pin dot matrix printer, the wider column version of the Swift 24.**

Printing at speeds of 160cps in draft and 53cps in LQ, the Swift

24X can emulate IBM, Epson and NEC printers through a standard parallel port. An optional serial interface is also

standard. Four LQ fonts are available in addition to a colour option. A push pull tractor, bottom feed and paper parking are also standard. The printer has a retail price of £489.00 excluding VAT.

## REVERSING FORWARD

**The cost of software maintenance in this country, estimated at £1bn a year, could be reduced by as much as 90% by the use of reverse engineering techniques, says a recent study.**

Reverse engineering is the process by which design and requirements analysis information is derived from code.

Computer manufacturers use the technique to replicate competitive products (One irreverent description of reverse engineering is "pushing excrement back into a cow with a pinhead and hoping to produce grass and milk at the other end").

According to the study, "Reverse Engineering: Markets, Methods and Tools" carried out recently by London-based market researchers, Ovum, the code is often the only reliable

record of what a system is actually doing.

Where documentation exists, it often takes the form of endless pages of almost indecipherable text. As a result, even the simplest change can take weeks or even months to complete.

But tool suppliers have been slow to understand the potential of the reverse engineering market, says Ovum. Although estimated by the researchers to be worth only £47m this year, it is expected to grow 38% annually - and will be worth £171m by 1994.

## SMALLEST CELLULAR PHONE PROMISED

**Hitachi Ltd. has said it will introduce the world's smallest, lightest cellular phone, called Flite, early this year.**

The car or handheld phone will weigh 320 grams and be 215 cubic centimetres in size, according to the Japanese manufacturer. Flite initially will be released in the United Kingdom, where Hitachi is considering manufacturing the phone, then continental Europe and the rest of the world.

Hitachi plans an initial production run of 2,000 per month, increasing it to 5,000 per month by the middle of this year and 10,000 per month in 1992.

## ACCESS TO ONLINE TELEPHONE DIRECTORIES

**The UK's leading computerised telephone directories - Phonebase and Electronic Yellow Pages (EYP) - can now be accessed by all users of Prestel, British Telecom's public videotex service, including the Amiga users of Micronet.**

Phonebase, updated 40,000 times daily, contains details of all of the UK's 23 million business, residential and local government telephone numbers and addresses (except ex-directory listings). There is no limit to the number of entries that can be searched for during a session; all that is required in each case is the type of telephone number required (ie business, residential or government), a name and a location (which can be as general as 'south east' or as specific as 'Hemel Hempstead'). During the search, the original enquiry can be amended or the search area can be enlarged or changed entirely.

EYP contains details of all 1.8 million businesses listed in the 66 national yellow page directories. Entries can be searched by company name or business type, or by geographical location by specifying the postcode, village, town, county, or area (eg south east). Companies can be defined either by their location or by the area which they service. Even words or phrases used in the advertising text which accompanies some entries can be used as search criteria, so locating a 24-hour plumber who covers the Plymouth area and accepts major credit cards is now a simple matter.

Electronic Yellow Page is free of all time-based charges. Phonebase is charged at standard rates; 7p per minute (peak) and 1p per minute (off peak). Once connected to Prestel, a simple keyword - \*EYP#, or \*PHONEBASE#, - takes the user directly to the service requested, or \*192# (the familiar directory enquiry telephone number) produces a menu of all the directory services available.

Standard charges for Prestel are:

Subscription: UK Residential - £8.00 per quarter

UK Business - £18.00 per quarter

Overseas - £50.00 per quarter

Usage: Peak (8am-6pm Monday-Saturday) 7p per minute

All other times 1p per minute

## THEY ARE GETTING CHEAPER ALL THE TIME!

**Philips has launched its first CD-ROM drive costing less than £400. The CM50 plays both 12cm and 8cm CD-Rom and CD-audio disks with a capacity of up to 600Mb.**



# AMC'S IMAGE LINK

Amiga Centre Scotland - ever in the lead in the technical area of the Amiga - have launched Image Link - an image conversion and full colour imaging system.

AMC told **AUI** that ImageLink is a powerful image conversion and imaging system which is both flexible and expandable. It has the capability to convert images between an infinite number of formats and output to high quality, full colour video and digital film for animation and presentation. According to AMC, "ImageLink turns your Amiga into a professional imaging workstation". Well that's exactly what you wanted for your birthday, wasn't it? Nothing like a bit of professional imaging to make your mates go "Wow!" You could even image a Penthouse Pet!

ImageLink will convert between multiple image formats: Amiga IFF, DigiView RGB, Caligari (Rendition), Compuserve GIF, Macintosh MacPaint, Macintosh PICT2, PC Paintbrush PCX, Raw RGB (Sculpt), Truvision Targa and Turbo Silver.

It will input directly from popular 3D packages including Sculpt-Animate 4D and Caligari. Furthermore, its modular design allows easy expansion to support new formats and imaging devices. It also supports AREXX and colour quantization/reduction and dithering with 24 Bit accuracy.

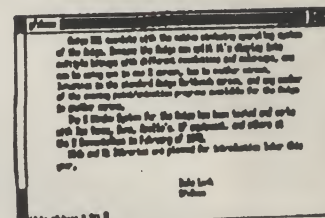
ImageLink will also scale images to any size and correct for differing aspect ratios. It outputs directly to hi-res (4000 line, 24 Bit) slide and motion picture film using Lasergraphics and Presentation Technologies film recorders and the Cinelink driver. And if you can understand all that, you probably ought to. **Contact: Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh EH1 3 RM, Tel. 031 557 4242**

By the way, ImageLink costs £179.00

# AMIGA X WINDOWS

X11 for the Amiga is an impenation of the X Window System Version 11 from the MIT X Window Consortium. The X Window System was devoped tp rovide a network transparent and operating system independant environment for the running of applications. In other words, an interface that would work across different systems and networks with coming up against incompatibility obstacles. The X Window System has become a recognised international standard, supported by nearly all types of engineering and profesional workstations.

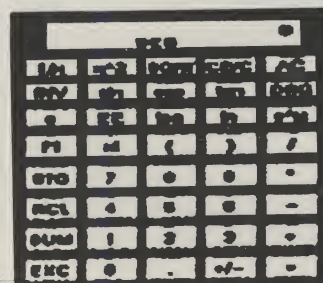
The idea of the X Window System is that applications can be carried out on the user's desktop computer ("X Server") while executing them on remote host computers. X11, from GfxBase, is a display server that gives users the capability to access these host-based applications from their own Amiga computer.



X11 will work on most Amigas using the normal AmigaDos operating system and works under Intuition in its own pull down screen. The complete system, however, requires at least six megabytes of memory and is best employed with a three button mouse.

Price £349.00

**Contact: Amiga Centre Scotland, 4 Hart Street Lane, Edinburgh EH1 3RN Tel 031 557 4242**



# JCL AIM HIGH!

JCL, the originators of ColourPic and SuperPic - real-time colour video digitisers - have announced the release of a direct interface between AIM ( a powerful image processing package) and their range of Amiga digitisers.

AIM is a public domain package utility developed by the Technical University of Delft in Holland for scientific image processing on microcomputers.

AIM has now been extended for artistic and media applications by Mr Ad Wisman of the Utrecht School of the Arts. Mr

Wisman is Vice dean of the Faculty of Iamge and Media Technology, which specialises in the creative use of computers. He has developed a wide range of Amiga facilities for AIM, including Amiga display, ColourPic interface and display, paint and ADO functions and

interfaces to other Amiga programs.

AIM exploits the upload facilities of the framestore in ColourPic and SuperPic allowing the effect of filtering and other functions to be seen on a display with a much wider colour range than the Amiga.

The collaboration between JCL and the Utrecht School of the Arts now allows Amiga users, JCL tells us, easily to apply

a wide variety of imathe processing techniques to video images.

AIM is available from the following PD libraries in the UK:

Softville (0705266509)  
Members: UKAUG (0533 510066), ICPUG (081 3460050)

For a free disk of pictures demonstrating the capabilities of ColourPic/SuperPic.

**Contact: JCL  
Tel: 0892 75791**

# TALKING TURTLE

Think Ltd. have brought out an introduction to Amiga LOGO for teachers and parents. It is a step by step approach and no previous knowledge of LOGO is required. It gives an opportunity to experiment and offers examples to study.

Talking Turtle comes in a disk and manual package with examples (including speech),

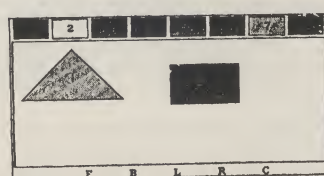
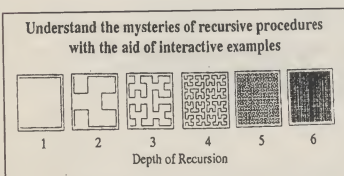
suggestions for classroom activities, avenues for further exploration and 'Fun and chal-

lenging activities' Think Ltd. says.

It also has 'Baby Turtle' - a one key Logo for the young (written in LOGO) and includes files for optional overlay keyboard.

It helps, claim Think, develop problem solving skills of deductive reasoning, task analysis and functional decomposition.

**Contact: Think Ltd., Prudential Buildings, 46C High Street, Erdington, Birmingham, West Midlands, B23 6RH.**



# 2000 FILES INFECTED

PC VIRUSES now infect more than 2,000 different file types beyond simple executable extensions.

Researchers have identified a total of 2,364 different extensions that the latest virus - the 4K Frodo - will infect.

They include DWG, QLB, CHT and MEM files. Viruses can now attack and possibly damage data files, something which virus researchers have always said was impossible.

These extra infected files were discovered after five UK sites reported incidents with Frodo.



# ANNOUNCING THE A5000 AND B5000

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- *500-1000% Faster than your Amiga* ●
- *Massive 4-32Mb of superfast memory* ●
- *100% Software compatibility* ●
- *Plug-in up to a 50 MHz Maths Co-Pro* ●
- *B5000 has advanced 32-bit Paged-Mode design* ●
- *32-bit Kickstart — five/ten times faster* ●
- *Three models — A5000-16/B5000-25/B5000-40* ●

### ● THE MACHINES ●

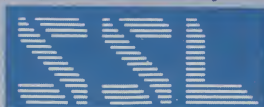
A5000-16: 16.67 MHz Asynchronous MC68020RC 2-3 MIPS (8 MIPS peak)  
 B5000-25: 25.00 MHz Asynchronous MC68030RP 5-6 MIPS (12 MIPS peak)  
 B5000-40: 40.00 MHz Asynchronous MC68030RP 8-9 MIPS (18 MIPS peak)  
 FPU: 12.5 MHz-50 MHz Asynchronous MC68881RC or MC68882RC  
 A5000-16 RAM: 4 Megabytes of 32-bit RAM 256 x 4 80ns DRAMs  
 B5000-25 RAM: 16 Megabytes of 32-bit RAM 1024 x 4 80ns DRAMs  
 B5000-40 RAM: 32 Megabytes of 32-bit RAM 1024 x 4 80ns DRAMs  
 SHADOW ROM: Move your Kickstart into 32-bit SUPER-FAST-RAM  
 SOFTWARE: 68000 fallback mode for 100% software compatibility  
 HARDWARE: 100% Compatible with Amiga 500/2000 and add-on cards  
 INTERFACE 1: Plugs into 68000 processor socket inside your Amiga  
 INTERFACE 2: A/B2000 Co-processor (Zorroll) card (for B5000-40 only)

**A5000-16 £295**  
(Price includes 1Mb RAM)

**B5000-25 £595**  
(Price includes 1Mb RAM)

**B5000-40 £1162**  
(Price includes 4Mb RAM)

(All prices inclusive of VAT)



SOLID STATE LEISURE LIMITED



# THE WORLD'S MOST POWERFUL NOW EVEN



**AMIGA ACTION REPLAY SIMPLY PLUGS INTO THE  
EXPANSION PORT OF YOUR AMIGA AND GIVES YOU THE  
POWER TO FREEZE MOST ANY PROGRAM**

## JUST LOOK AT THE UNMATCHED RANGE OF FEATURES

- **SAVE THE ENTIRE PROGRAM IN MEMORY TO DISK**

Special compacting techniques enable up to 3 programs to fit on one disk. Now saves directly to disk as Amiga Dōs - reloads independently of the cartridge - even transfer to hard drive! Works with up to 2 Megs of Ram - even 1 Meg Chip Mem (Fatter Agnus).

- **UNIQUE INFINITE LIFE/TRAINER MODE - NOW MORE POWERFUL**

Allows you to generate more and even infinite lives, fuel, ammo, etc. Perfect as a trainer mode to get you past that "impossible" level. Very easy to use.

- **IMPROVED SPRITE EDITOR**

The full Sprite Editor allows you to view/modify the whole sprite set including any "attached" sprites. **RANGE OF IMPROVED FEATURES.**

- **VIRUS DETECTION**

Comprehensive virus detection and removal features to protect your software investment. Works with all presently known viruses.

- **SAVE PICTURES AND MUSIC TO DISK**

Pictures and sound samples can be saved to disk. Files are saved directly IFF format suitable for use with all the major graphic and music packages. Samples are displayed as screen waveform.

- **SLOW MOTION MODE**

Now you can slow down the action to your own pace. Easily adjustable from full speed to 20% speed. Ideal to help you through the tricky parts!

- **RESTART THE PROGRAM**

Simply press a key and the program will continue where you left off.

- **FULL STATUS REPORTING**

At the press of a key now you can view the Machine Status, including Fast Ram, Chip Ram, RamDisk, Drive Status, etc.

- **POWERFUL PICTURE EDITOR**

Now you can manipulate and search for screens throughout memory. Over 50 commands to edit the picture plus unique on screen status "overlay" shows all the information you could ever need to work on screens. No other product comes close to offering such dynamic screen handling of frozen programs!!

- **MUSIC SOUND TRACKER**

With Sound Tracker you can find the complete music in programs, demos, etc. and save them to disk. Saves in format suitable for most track player programs. Works with loads of programs!!

### WARNING 1988 COPYRIGHT ACT WARNING

Datel Electronics Ltd., neither condones or authorises the use of its products for the reproduction of copyright material.

The backup facilities of this product are designed to reproduce only software such as Public Domain material, the users own programs or software where permission to make backups has been clearly given. It is illegal to make copies, even for your own use, of copyright material, without the clear permission of the copyright owner, or the licensee thereof.



# FREEZER-UTILITY CARTRIDGE IN BETTER!!



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**A2000 VERSION  
AVAILABLE  
£69.99**

**PLEASE STATE WHICH COMPUTER  
YOU HAVE WHEN ORDERING**

## THE NEW MK II VERSION IS HERE!!

**NOW WITH A MASSIVE 128K OPERATING SYSTEM IN ROM OFFERING  
EVEN MORE COMMANDS...**

### ● AUTOFIRE MANAGER

From the Action Replay II preference screen you can now set up autofire from 0 to 100%. Just imagine continuous fire power? Joystick 1 and 2 are set separately for that extra advantage!

### ● DISKCODER

With the new "Diskcoder" option you can now 'tag' your disks with a unique code that will prevent the disk from being loaded by anyone else. 'Tagged' disks will only reload when you enter the code. Very useful for security.

### ● PREFERENCES

Action Replay II now has screen colour preferences with menu setup. Customise your screens to suit your taste. Very simple to use.

### ● DISK MONITOR

Invaluable disk monitor - displays disk information in easy to understand format. Full modify/save options.

### ● DOS COMMANDS

Now you have a selection of DOS commands available at all times - DIR, FORMAT, COPY, DEVICE, etc.

### ● DISK COPY

Disk Copy at the press of a button - faster than Dos Copy. No need to load Workbench - available at all times.

### ● BOOT SELECTOR

Either DF0 or DF1 can be selected as the boot drive when working with Amiga Dos disks. Very useful to be able to boot from your external drive.

**PLUS A MACHINE CODE FREEZER MONITOR WITH EVEN MORE POWER!!**

**MORE FEATURES INCLUDING 80 COLUMN DISPLAY AND 2 WAY SCROLLING...**

- Full M68000 Assembler/Disassembler
- Full screen editor
- Load/Save block
- Write String to memory
- Jump to specific address
- Show Ram as text
- Show frozen picture
- Play resident sample
- Show and edit all CPU registers and flag
- Calculator
- Help command
- Full search feature
- Unique Custom Chip Editor allows you to see and modify all chip registers - even write only registers!
- Notepad
- Disk handling - show actual track, Disk Sync. pattern etc.
- Dynamic Breakpoint handling
- Show memory as HEX, ASCII, Assembler, Decimal
- Copper Assemble/Disassemble - now with suffix names

**REMEMBER AT ALL TIMES YOU ARE INTERROGATING THE PROGRAM IN IT'S  
"FROZEN" STATE WITH ALL MEMORY AND REGISTERS INTACT  
- INVALUABLE FOR DE-BUGGING  
OR JUST THE INQUISITIVE!**

## HOW TO GET YOUR ACTION REPLAY II FAST...

**TELEPHONE (24 Hrs) - 0782 744707 - CREDIT CARD ORDERS**

WE WILL DESPATCH YOUR ORDER QUICKLY & EFFICIENTLY TO ENABLE YOU TO START RECEIVING THE BENEFITS OF YOUR PURCHASE WITHIN DAYS, NOT WEEKS.  
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# LIGHTWEIGHT COLOUR MONITOR



THE IN-FOCUS LCD MONITOR IN A PROTOTYPE CONFIGURATION. DISPLAYING UP TO 5000 COLOURS SIMULTANEOUSLY, THE MONITOR WEIGHS LESS THAN 6 POUNDS AND IS APPROXIMATELY 3 INCHES IN DEPTH. IS COMPATIBLE WITH CGA, EGA, VGA, ETC. COMPUTERS.

In Focus Systems has launched the industry's first light-weight, full-colour monitor that uses passive-matrix liquid crystal displays (LCDs).

The colour monitor uses the company's proprietary colour LCD technology to provide close to 5,000 displayable colours. It is compatible with personal computers systems, or can be integrated into industrial and medical applications where traditional cathode-ray tube (CRT) monitors are too heavy and bulky.

In Focus can provide either a complete monitor or LCD display modules, which can be integrated into others' equipment.

TSTN tm: Manufacturing in Quantity.

Several Japanese manufacturers have recently announced flat-panel colour monitors based on thin film (TFT) technologies that compete for the same market. However, production yields are currently running at only 20%. In TFT displays, a single

panel can contain a million or more interconnects — each of which must be working to display a clear screen. Manufacturers are finding this very difficult to accomplish.

In Focus has used its own patented passive-matrix technology to provide colour. Light passes through three stacked LCD panels, each tuned to a specific primary colour range. By varying the light transmission through each pixel of each panel, images are formed with up to 4,913 colours displayable simultaneously. It is the only colour LCD technology, that, to date claim In Focus, that can be manufactured in quantity.

Contact: In Focus Systems, 7770 S.W. Mohawk Street, Tualatin, Oregon 97062 or call toll free 1-800-327-7231.

# MONITOR TESTING SOFTWARE



Testcard is a simple and inexpensive, but highly versatile, program from Black Star which allows the rapid checking and alignment of computer monitors. The software runs on IBM-PC, XT, AT, PS/2 and 100% compatibles, and can check MDA, CGA, MCGA, ATT400, EGA, Hercules, VGA, IBM8514 and most PC monitors capable of operating in text mode.

All standard patterns and colours used by professional service engineers are produced by 'Testcard' including Focus, Dots, Vertical Lines, Horizontal Lines, Grating, Shading, Checkerboard, High/Low Intensity Colour Bars, Composite Testcard, Circle, Raster, Grayscale and Multiburst.

'Testcard' is supplied as standard on both 5 1/4" and 3 1/2" floppy disks, and comprehensive instructions are included.

'Testcard' costs £29 + VAT.

Contact: Black Star Ltd., 4 Harding Way, St. Ives, Huntingdon, Cambs. PE17 4WR. Tel: (1480) 495172.

# SEXY JIGSAW REVEALS ALL!

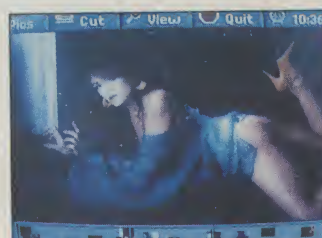
The world's first computerised jigsaw for the Amiga has been created with, according to the software house responsible for the distribution in Europe, "the naughty bits". Data Liberation (No, not Women's Liberation in any way!) have based it on the centrefold nudes of one year of the girlie magazine Penthouse. There are, in the Amiga computerised jigsaw, 12 puzzles to be solved, each with a very well-endowed lovely in a suitably raunchy pose.

The Penthouse Electric Jigsaw for Adults, for such is its clever name, was actually developed in the U.S.A. by Merit Software. However for those who feel that the Penthouse nudes go just a naughty bit too far, or as Data Liberation so delicately put it "Do not belong to the boobs and bums aficionado brigade", there is also a standard version where the Penthouse Pet of the Month appears skimpily but less explicitly clad.

The Penthouse jigsaw can be played with from 6 to 294 pieces, with 16 different sizes (though as any Penthouse Pet will tell you, size doesn't matter...) each in a traditional jigsaw shape from which to choose.

The program cuts the pieces each time into a unique shape, so apparently offering an infinite number of puzzles - if you have that much patience.

An overview window appears at the bottom of the screen to display



the pieces as if they were spread across a table. This allows the player to view all the pieces at the same time, and so is able to select one or assemble groups before placing them in the picture.

There is also a working window through which all the pieces not already assembled can be scrolled.

"Where it really scores (!) is that



you cannot ever lose any of the important bits" says Paul Booth, head of Data Liberation. "You can guess the ones I'm referring to."

Er...no, Paul... Not exactly... We're Amiga users you see... We don't understand that sort of thing, perhaps you'd like to explain... For those who really need to find out, The Penthouse Electric Chainsaw, sorry Jigsaw, costs a mere £34.95.



## "WORLD'S SMALLEST, FASTEST AMIGA IDE HARD DISK CONTROLLER"

AdIDE is the first small host adapter to give Amiga owners access to affordable IDE standard hard drives, including the latest 3.5- and 2.5-inch hard disk drives. Potential uses include fitting any A500 with an *internal* hard drive!

ICD has announced AdIDE, a small yet fast, autobooting IDE hard drive controller that gives Amiga owners access to the same 2.5-inch and 3.5-inch hard drives.

AdIDE provides Amiga owners with an affordable alternative to more expensive SCSI (Small Computer Systems Interface) standard host adapters and hard drives, because it conforms to the Intelligent Device Electronics (IDE) hard drive controller standard found in portable and laptop computers and inexpensive PC clones.

IDE drives are different from SCSI drives because they use an embedded controller with a modified PC style 16-bit AT bus. Not only are they commonly found in both 3.5- and 2.5-inch form factors, they are also typically less expensive than equivalent SCSI drives.

ICD's AdIDE installs easily into any Amiga 500, 1000 or 2000-series computer and supports full auto-booting under Kickstart version 1.3 and higher. AdIDE is also fully compatible with other devices on the external expansion port (SCSI cards, memory cards, etc).

ICD's innovative software also allows booting from external floppy disks when desired. This permits a 3.5" hard drive to occupy the internal floppy space in an A500 and full use of an external floppy for protected programs that won't run from a hard drive.

Measuring at just 3.32 by 1.62 inches (84.4 mm x 41.2 mm), AdIDE is claimed by ICD to be the smallest host adapter ever developed for the Amiga. And, they say, is possible due to modern Surface Mount Technology.

# OXXI'S NEW TEXT EDITOR

Oxxi, Inc. has announced TurboText, "they say, one of the most powerful, fast and flexible text editors ever released for any personal computer." Written by star Amiga programmer Martin Taillefer, TurboText, Oxxi claims, truly represents the next generation of Amiga text editors.

TurboText is unique because it offers novice and experienced users alike the widest possible flexibility — from simple recorded macros and keyboard remapping, all the way to tailored, fully interactive, ARexx-based development tools for writing, syntax checking, compiling and testing code in any programming language.

TurboText can be used to

create scripts for use in other Amiga programs, desktop publisher

TurboText comes with an extensive list of basic editing and control features, including centering, justification, search and replace, keyboard equivalents for mouse operations, upper/lower case conversion, etc. Mouse-control of cut and paste operations make full use of the standard Amiga

clipboard enabling text transfers between different applications.

More advanced features include an integrated programmer's calculator, a hexadecimal editing window, outlining abilities, text template support, keyboard and menu remapping, and complete redefinition of all text strings to customize the editor to various languages. TurboText also has built-in emulation of many popular Amiga, UNIX and PC text editors, such as TxE+, CygnusEd, MicroEMACS, and QEdit.

# OXXI 24-BIT SCANNER

**ScanMaster scans at 300 dpi resolution and can process images up to 256-level monochrome or 16.7 million colors. Its advanced image processing capabilities include 256 level gray-scale processing, digital halftoning, 5-level gamma correction and 24-bit colour separations.**

Oxxi, Inc. has announced ScanMaster, a new 300 dpi, 24-bit flatbed colour scanner for all Amigas, offering sophisticated image manipulation and processing capabilities for a wide variety of applications, including business and professional desktop publishing and presentation graphics.

Oxxi's new ScanMaster colour scanner uses a flatbed design, and is large enough to handle documents up to 8.5 x 11.7 inches in size — including European A4 or US letter size. Built around a SEIKO scanning engine, ScanMaster incorporates many features previously available only in the most expensive professional, **Oxxi, scanning systems.**

ScanMaster's ImageMaster utility software is easy to learn and use, and features a number of professional tools for enhancing, manipulating and saving images, including a facility for making professional 24-bit (16.7 million shade) CMY or CMYK colour

separations from any scanned image — a requirement of electronic colour desktop publishing applications.

In addition to standard image processing features like flip, mirror and 90-degree rotation, ImageMaster can create negative images (both in colour and black & white) — especially useful when outputting to print film in high resolution film recorders. Other facilities sharpen images by enhancing colour contrast, or create a "blurred" look by blending adjacent pixels. Images can be pixelized to give them an artistic "mosaic" pattern.

ImageMaster allows control the "fine-tuning" of colour relationships. Adjustments include hue/saturation, contrast/brightness, colour balance, colour filter and luminance.

The ImageMaster software can both load and save a number of different image file formats, including IFF, GIF, TIFF. The DV21 format can also be loaded, but not saved.

Other features built into

Scan Master's ImageMaster software include:

*Optimal Resolution Zoom*  
*Sophisticated Digital Halftoning*  
*Monochrome Scanning and Selectable Dropout Colour.*

Seven brightness levels are also available to enhance low contrast original images, such as over- or underexposed photographs. ScanMaster prints 256 colours on any Preferences printer, (up to 256 shades of gray on black and white printers).

Oxxi's ScanMaster includes a special cable which connects to the Amiga parallel port. ScanMaster will be available in early 1991 and carry a suggested retail price of \$1,999.00.

**Contact: Oxxi, Inc., 1339 E. 28th St., Long Beach, CA 90039 USA. Tel: (213) 427-1227. Fax: (213) 427-0971.**

**ACD GmbH, Dammweg 15, 2800 Bremen 1 Germany. Tel: (0421) 343131. Fax: (0421) 3499518.**



# Amiga AT Emulator



Silica Systems have told *AUI* that the first 80286 or AT emulator for the Amiga is now available. The Vortex ATonce (At once, geddit?) is claimed to be several times faster than existing PC emulators. It also offers full multitasking, hard drive support and will be offered at a competitive price.

ATonce-Amiga is, say Silica, a full 80286 emulator providing an 8Mhz PC AT system. Silica claim that it is also the first PC emulator for the Amiga to multitask, running MSDOS applications side-by-side with AmigaDOS programs.

Atonce-Amiga is compatible with Amiga hard drives. The internal disk drive is converted to a 720kb MSDOS drive while external 3.5 inch and 5.25 inch floppy disks are also converted to their MSDOS equivalents.

The serial and parallel ports are also fully converted and available under MSDOS. The Amiga mouse is reconfigured

as a Microsoft mouse.

Expected shortly is a card adaptor for the Amiga 1500, A2000 and A3000. This will allow ATonce to be plugged into a Zorro slot and address any PC cards fitted. With this facility, ATonce performance can be further enhanced with video and memory cards.

Recommended retail price is £199.00. For users who do not already own MSDOS, Silica can supply official MSDOS 4.1 plus manuals for an extra £50.00.

**Contact: Silica Systems, 1-4 The Mews, Hatherley Road, Sidcup, Kent DA14 4DX Tel. 081 309 1111**

# SciTech's AMPlot

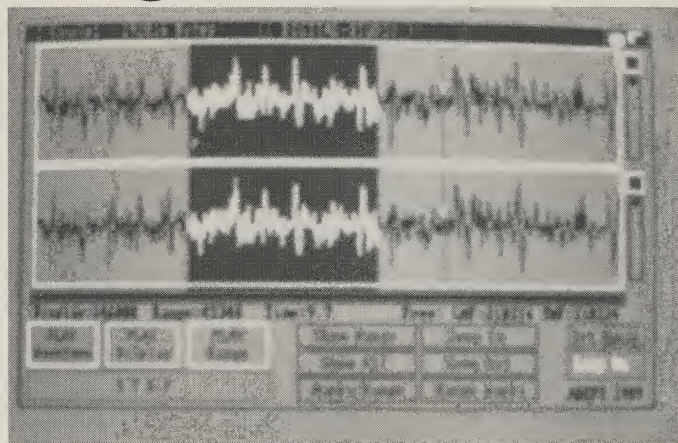
SciTech are releasing AMPlot, a powerful PostScript graph plotting program for the Amiga. AMPlot produces PostScript files to send to a Post-Script printer or a Preference supported printer via PostScript interpreter software such as PixelScript (Pixelations, Inc.). Encapsulated PostScript Format (EPSF) is also supported, allowing graphs to be incorporated into documents produced by desk-top publishing software.

AMPlot, SciTech tell *AUI*, breaks the mould of graph drawing on the Amiga. Most graph plotting software available for the Amiga, to date, has been an extra feature on spreadsheet programs. Many of these programs produce high quality graphs on screen, but fall short of publication quality when it comes to printed out-

put.

AMPlot produces line plots, scatter plots, barcharts and pie charts. The scientific user is fully supported with features such as error bars and 3 types of line and curve fitting (robust straight line fitting, linear regression of polynomials up to 20th degree and Fourier (smoothing) all readily available.

# Digital-Studio



Digital-Studio is a software package enabling the editing and manipulation of digital stereo sound.

The Digital-Studio will allow you to cut, mix, remix, redraw, or add a wide variety of special effects and changes to the audio band for Desktop Presentations.

It is possible to compose music by playing the memorized samples in the 10 work zones following various programmable sequences.

All the commands for volume, frequency, assembly and special effects, are in real-time and permit audio monitoring of the sound, without interruption, during their operation.

**Features include:**

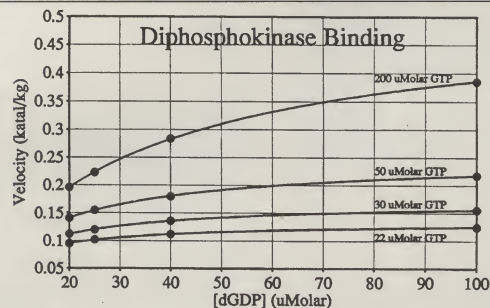
Sampling rate up to 44 KHz, automatic voice activation, frequency control (pitch), separate left, right, volume control, anti-aliasing audio filter control, transforms mono into stereo and vice-versa, ten work memory zones, uses all the continuous blocks of memory space, audio waveform redrawing tool, load and save, stereo or mono, IFF file format or IFF instrument, compression file mode, possibility to store a large sample on multiple disks.

**Contact: Adept Marketing PO Box 20, 1000 Lausanne 5, Hoegartss. Tel: (++41) 21 312 12 02**

**"Congratulations to the following winners in our MSM November subscription renewal draw.**

T. Lewis from Ilford wins £150  
G.D. Holley from Taunton wins £50  
R. Davis from Stoke Coventry wins £50

When subscribers renew, their names will automatically be entered into our monthly renewal draw. You can renew at any time. Call us on 091 510 2290. Good Luck!"



AMPlot is fully compatible with V2.0 of the AmigaDOS operating system and with the Amiga 3000.

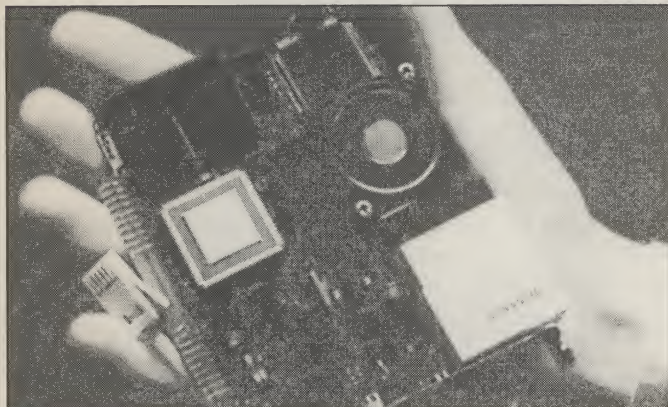
AMPlot is priced at £75.00

with its licences and academic discounts available.

**Contact: SciTech Software, 23 Stag Leys, Ashted, Surrey. KT21 2TD. Tel: (0372) 275775**



## ALL ON ONE CARD



In one compact V32 PC modem, the microQUIN offers the facilities of a fax card, low speed modem for accessing bulletin boards, a high speed modem for fast file transfer and a synchronous modem for micro to mainframe communication.

The design includes an on-board digital signal processor for upgrading to the forthcoming modem standards.

The MicroQUIN sells for £799 and where the V32 performance standards aren't necessary, there is the MicroQUAD for £399. **Contact: Kerridge Network Systems Fax No. 0653 38578**

## ARM YOUR AMIGA

### AmigaDOS 2.0 comes to the Amiga 1000!

COMSPEC, longtime Canadian Amiga developers tell us that no longer will you be "incompatible with the present phase of Amiga development! Comspec's new AMIGA ROM MODULE (ARM) is designed to allow Amiga 1000 owners to take full advantage of some of the enhanced features of the AmigaDOS 2.0 operating system without too high a cost.

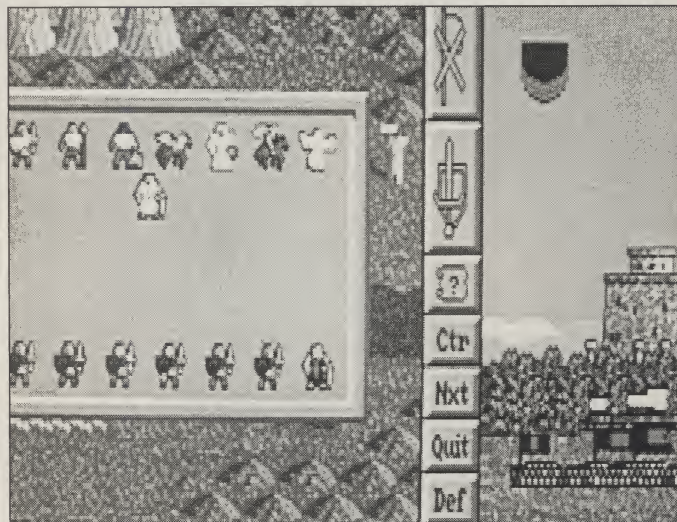
The ARM-1000 include the following features: free 256K of RAM for the Amiga 1000 (this memory, usually occupied by KickStart, is no longer needed

for that purpose and can be used like normal RAM); user installable chips can include Kickstart 1.3, 2.0 and future ROM chips; pass-through allows the ARM-1000 to reside anywhere in expansion chain; works with RAM boards, hard-disk controllers, and other devices; designed for lowest possible level of bus 'noise'; low power consumption; and a one year warranty.

Price: \$99.95 US

**Contact: Comspec Communications, 74 Wingold Avenue, Toronto, Ontario, Canada. M6B 1P5. Tel: (416) 785-3553**

## WARLORDS



Sirians! you are being attacked!

Warlords from Electronic Arts is an eight player strategy game played across the fabled land of Illuria. The unconvincing peace treaty has expired and the Storm Giants, Orcs of Kor, Horse Lords and other warring tribes are out to take the land for themselves.

Starting from the player's chosen home castle, he must ruthlessly expand his territory at the expense of the other seven players, made up of any mix of human or computer opponents. By setting up armies the player can take over the castles scattered the length and breadth of Illuria, some located behind natural barriers, others mighty fortresses. Armies must be paid in return for their sacking of castles and collection of loot.

Heroes are also at the disposal of the player, and they can play a crucial role in the winning or losing of the game. Only they can explore the ancient temples and forbidding

ruins of Illuria for gold or for knowledge. They can form alliances with fierce dragons or demons to help in battle and only Heroes can find and wield the Ancient Artifacts of battle, such as the Firesword or the Bow of Eldros, which increase their powers in battle.

Warlords features sixteen different types of fighting unit, from Light Infantry to Navies and creatures of Hell. By arranging units to attack the opposition by land, sea or air, the land of Illuria can be conquered but beware, friends turn to enemies, alliances are formed against each player, and to claim supreme power, many battles lie ahead. Amiga and IBM £24.99

## BETTER BUT NOT DEARER

ICD's AdSCSI 2000 fast SCSI hard disk controller is now being shipped with larger, faster, more power-efficient hard disk drives - but ICD tell us at the same price as before.

Starting a trend that they believe others will try to emulate, the engineers at ICD, Inc. have decided to enhance the value of their AdSCSI 2000 series Amiga SCSI hard disk control-

lers without raising prices.

The AdSCSI 2000 is an Amiga hard disk controller which can be connected to internal or external SCSI hard drives. Until now, ICD gave customers the additional option of purchasing the AdSCSI 2000 as a hardcard, complete with either a Quantum 40S, 105S or 170S hard drive, offering 40, 105 and 170 mega-

bytes of storage, respectively.

Now, however, ICD are making their AdSCSI 2000 host adapter available with superior Quantum LPS series hard drives. In addition, the 40 megabyte option will be replaced by a 52 megabyte hard drive at no extra charge.

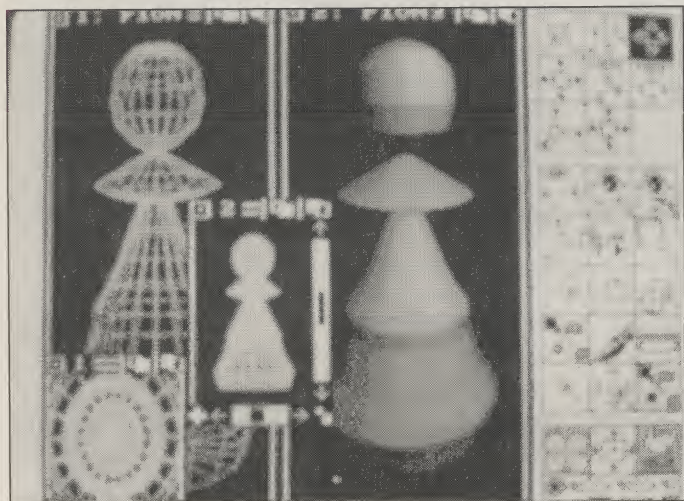
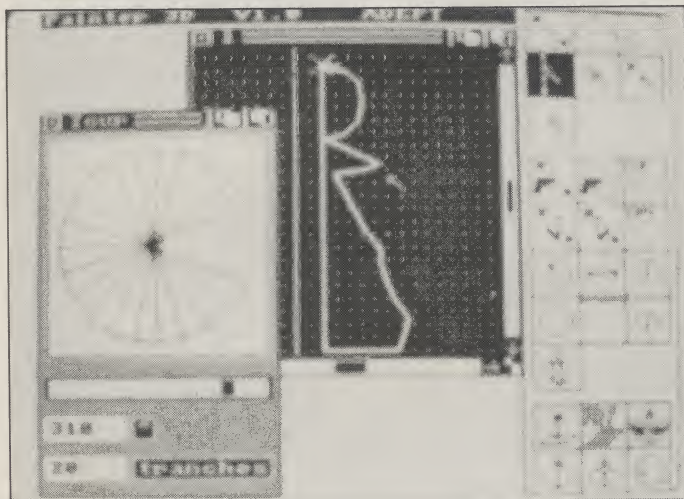
Besides offering more storage space for the same price, the new Quantum LPS drives

use one-half the power of the previous drives and transfer data approximately 30% faster.

"The computer industry is one of the few where prices go down at the same time that product functionality and performance improves," says Tom Harker, President of ICD. "We feel an obligation to pass these price/performance benefits along to our customers."



# Painter 3D



Adept's shortly to be released Painter 3D is a powerful, rapid three dimensional drawing program with which you create scenes, objects, models, of extreme complexity and quality with the same ease as ordinary paint programs.

The objects which you use to compose your scenes, are designed simply by drawing an outline, which you will then extrude or rotate about an axis to produce a three dimensional shape.

The objects can then be used to construct more complex scenes, which in their turn can become an object in another scene and so on, permitting the assembly of unlimited numbers of objects, and the possibility of creating models of infinite complexity.

Painter 3D has many tools, accessible through icons which among others allow you to:

Move about within the scene, to zoom, or to increase the detail of the scene.

Rotate the objects making up the scene, to deform the objects in each direction.

Colour the objects, and even have a 3D colour cycle.

Add an object to a scene or take one out

Manipulate the objects in their different views, in wireform or hidden face.

Make unlimited copies of the work windows, simultaneously.

**Contact: Adept  
Suite 209B  
Dallas, Texas 75231  
214-340-4991**

# VIDEO TOOLS ON TAP

Australian developers Fordray has announced a new NERIKI software package that "will change the whole concept of desktop video." (Again?) NERIKI "VIDEO TOOLS ON TAP" will, Fordray claim, offer the user many features that in the past were not possible with computer software.

Designed to multi-task with other software and any Amiga model, Video Tools On Tap offers a variety of utilities and effects. These can be called up by a special hot key combination. It runs in the background (when multi-tasked) without affecting the display until you tell it to do so. No graphics memory is used when it is inactive.

Video Tools On Tap also has a ARexx port so that it can perform automated tasks such as converting standard images to full overscan etc. It can also be used as part of an automated slide show. The user can also configure the Video Tools On Tap display to suit the particular genlock or encoder.

The instruction manual supplied with Video Tools On Tap is unique. It offers video set-up procedure for the user is not familiar with this side of the industry. It also offers explanations of the colour bars, how to read them and adjustments so that the final video product has a "professional result".

This software package says Fordray "gives new dimensions to the Desktop video application. It is now possible for all users of computer in video production to produce a professional product without the frustrations of the past!" Oh yeah?

Price: About £90.00

**Contact: Fordray Pty Ltd., P.O. Box 1265, Orange NSW Australia. Tel: 61 63 62 9901**

## QUOTE OF THE MONTH

*“Pencils are quite good for developing ideas – sketching on the back of an envelope. Computers are very bad at that. You can’t be informal with a computer, you can’t be ambiguous, you can’t be fuzzy, you have to be precise, you have to be definite . . . you don’t think when you pick up your pen, how do I work this? You just use it. And there’s no reason why computers can’t be like that.”*

Robin Baker, Director of Computing, Royal College of Art.

They must have read his mind . . . They can . . . This month Go Inc. in the USA launched a 'pen-to-pad' computer interface and IBM have already licenced it. Apple are developing one too . . .



# THE AMIGA 500 PC/XT IS HERE



"... The PC Board is indeed a very highly compatible device ..." AUI Dec '90

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incorporated  
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## Why did you buy an Amiga 500?

Of course, because of its superb graphics, music and animation capabilities. However if you want to get serious, you soon realise that it is distinctly lacking in memory and professional software.

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You are now ready to use a wealth of professional MS DOS software at speeds faster than a PC/XT (ind. review), and in colour, with compatibility thanks to Phoenix-Bios. You can also rely on the correct date and time at any moment in Amiga and MS DOS mode.

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\* Disk support: internal 3.5" external 3.5" external 5.25" drive. (A590 hard drive now supported)

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\* Including English Microsoft books + KCS manual + FREE software.

\* Further exciting software upgrades in the pipeline

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\* For export price please contact us

\* Trade enquiries welcome (UK - Scandinavia - Australia/NZ and all English language)



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**All Above systems will fit internally with A1500.**  
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

**!! EMULATORS !!**

Vortex ATonce PC Emulator :-	£ 199.00
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KCS includes 512K ram + MSDOS, in the above price.	
Wonderfull new <b>Micro-Switch Mouse.</b>	£ 24.95
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**Everything on these pages will fit the A1500.**  
**!! Ring for details on the many products not listed !!**



CDL A1500

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**All Prices include Vat but exclude P&P**  
Did You See the Hi-Q at the 16 bit Show



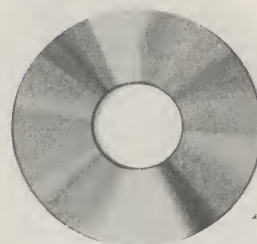
80 Mildmay Park, London, N1 4PR  
England.  
Tel 071-923 0658  
Fax 071-254 1655



# CDTV

## The Software Arrives

*Steve Homer files a special report from Las Vegas where CBM's heralded new technology is finally launched...*



**C**DTV has finally shown itself to the world. The domestic multimedia technology joined a throng of new developments on at the Consumer Electronics Show in Las Vegas. Fortunately for its makers, Commodore, the world was really rather impressed.

The company also offered the first look at a prototype Amiga add-on which will convert a 500 into a CDTV machine.

While Commodore says CDTV stands for Commodore Dynamic Total Vision, everyone in the real world knows that the company wants us to

think of a CD plus a TV but no doubt licensing problems cannot allow this truth to be voiced.

With CDTV, text, graphics and audio are read from a CD-type disc and displayed on a television screen. The user controls the interactive reading of a disc with an infra-red remote control.

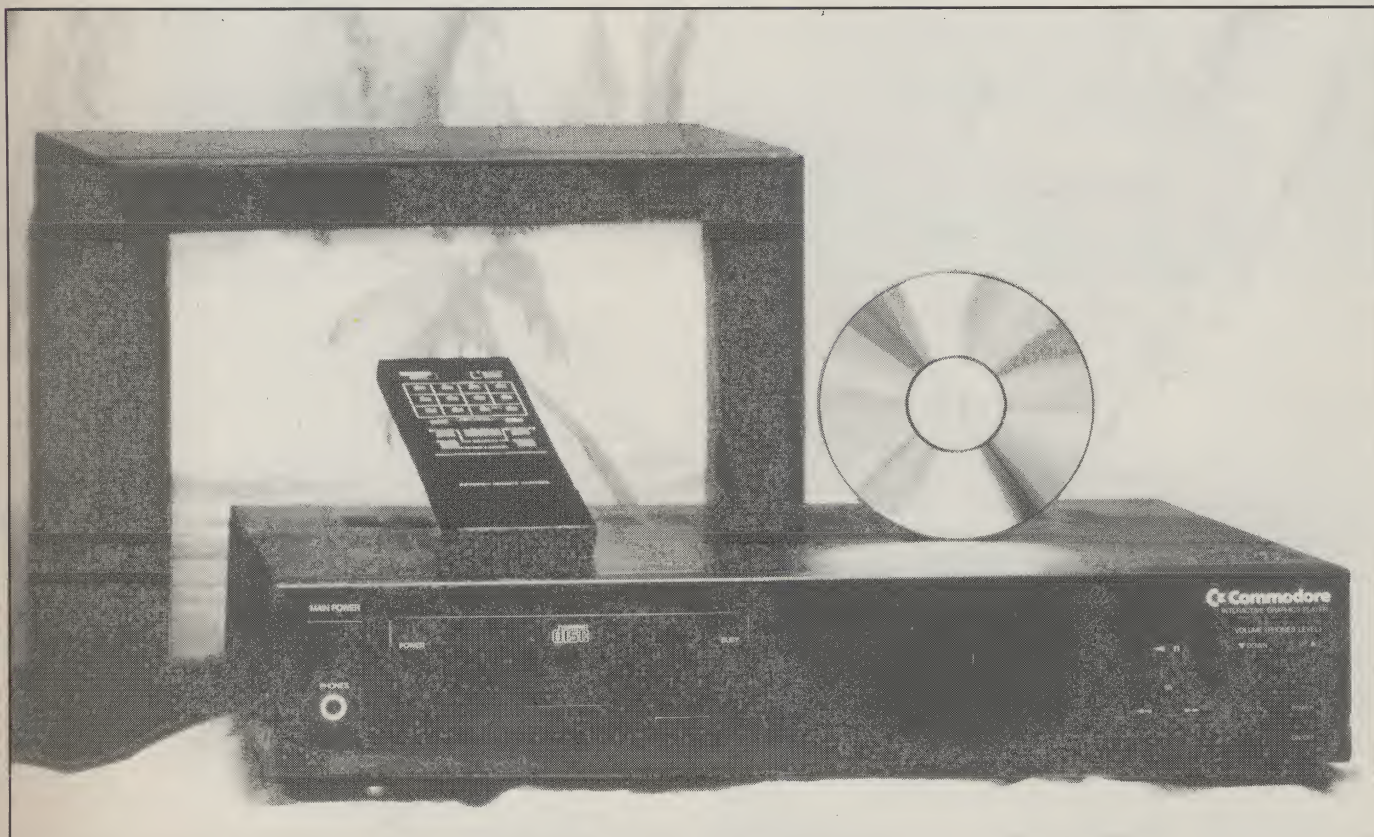
Commodore has been promising to have CDTV in the shops since last November. However, the delay has allowed Commodore to collect an impressive range of titles for the new machine, but few are completely ready and the company has a lot rid-

ing on the shoulders of this technology.

Commodore which does well in the computer sector in the UK and the rest of Europe, is being squeezed out of the essential US market by IBM, Apple and others. Commodore needs CDTV to be a major success.

Robert Larsen, Vice President of Sales, has been reported in quite candid tone. "This is definitely a critical product for us, we recognize we need a product that will really allow Commodore to really assert itself in the market and we believe we have

*Continued on page 21*



*Commodore Dynamic Total Vision - CBM's most important development since the Amiga.*



**A LONG TIME AGO IN A GALAXY FAR FAR AWAY, IT WAS DECIDED  
THAT THE WAY TO EXPAND AN AMIGA A500 BEYOND ONE MEGABYTE WAS TO  
OPEN THE HOST MACHINE AND FIX THE EXPANSION MEMORY INSIDE, THUS  
INVALIDATING THE WARRANTY, OVERLOADING THE POWER SUPPLY AND OFTEN  
CAUSING DISASTEROUS HARDWARE INCOMPATIBILITY PROBLEMS**

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2. As above, but with the cover removed.

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Hard disks. Systems available for all Amiga variants call for details and pricing.

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Continued from page 19

the product that can do that for us. Our last big winner in the consumer channel was the Commodore 64; we feel strongly that CDTV will be our next."

Mr Larsen went further and said that CDTV would contribute fully 40% of Commodore's US consumer sales revenue during calendar 91 and this despite Commodore Chief Executive Irving Gould's comment "I think this product is one that starts out without a tremendous bang but builds up a tremendous amount of steam".

The product is attractively styled in a black player similar in appearance to a conventional VCR or audio CD player. The machine is controlled by an infra-red controller. What makes this technology work is the really phenomenal storage capacity of the CD ROM — more than 550 Megabytes of digital data — the equivalent of 250,000 pages of text. This allows program developers to design software that is more sophisticated, challenging and exciting than anything available on computer or home entertainment format.

The inevitable electronic games are significantly more sophisticated in game play, sound and graphics than current home computer or video games. But several senior Commodore figures complained publicly that games developers were not yet taking advantage of the new technology. While familiar games were getting stereo audio added quite often the

limited graphics of the Amiga titles were not being improved for the CDTV version — despite the fact that the developers now had 550 Mb to play with rather than the 1-1.5 they were used to.

The games shown ranged from Xenon II and Falcon through to the Case of the Cautious Condor and Defender of the Crown. Around 30 games titles will be available at, or soon after, launch but it will take some time before the giant games that will truly take advantage of CDTV's capacity and capabilities become available.

The heart of the CDTV player is its Motorola 68000 16/32-bit central processing unit (CPU). The player has ports for infrared and wired peripherals including keyboard, floppy disk drive, trackball and joystick.

The basic CDTV player also contains a front panel personal memory or "smart card" port, which allows consumers to save up to 512 kilobytes of data. This means the CDTV can be turned off and applications such as games or personal finance projects can be resumed simply by re-inserting the card and continuing the application.

The rear panel has a serial and parallel port for a modem and printer and a midi interface. An additional port enables programs to be downloaded to Composite/Hi8 and Super VHS video.

Finally the front-panel offers 24-hour clock, stereo headphone jack

and full-function fluorescent display.

While Commodore is selling CDTV purely as an interactive multimedia platform, the company obviously believes it can earn extra revenue from these add-ons which turn the machine into a fully functioned home computer, a music system controller or a video effects work station.

But it shouldn't be forgotten that the CDTV player is also a straight forward audio CD player offering 8-times oversampling, 102dB S/N and dual 16-bit D/A converters — all controlled through an innovative on-screen panel providing advanced features for controlling CDs.

CDTV also offers access to two "hidden" CD audio technologies. CD+G and CD+Midi.

CDTV is apparently one of only two players that can access CD CD+G which uses spare capacity on an audio CD to encode graphics data. This can be images relating to a piece of music, words of songs, abstract patterns or whatever the record producer desires. There are over 50 CD+G disks already available from various record labels ranging from the Magic Flute to Jimmy Hendrix.

CD+Midi technology has only just been developed. It allows a midi-compatible instrument to be controlled by the CD playing on CDTV. So, for example, the keyboards on a particular track can be isolated and removed from the audio output, the midi information can then be sent to your



CES Las Vegas - Where Commodore gave CDTV its official U.S. launch.



Continued from page 21



Photo - Steve Homer

**Jim MacKonikie, CBM's CD specialist demonstrates CDTV.**

synthesizer and instead of keyboards you can create a violin sound to play the same tune or modify it in any way you wish. This facility caused quite a stir in Las Vegas as it was the first public outing of CD+Midi. In fact the Commodore CDTV is believed to be the only player of CD+Midi around.

Many visitors were very impressed by what they saw. Gregg Gronwski, who described himself as a retired musician while all the time being a senior executive for Zenith television, described the system as "quite amazing". Standing by a synthesizer playing along with a demo record he added: "What is so exciting is the visual interpretation which is so good." However he added, that it would need a little extra equipment — i.e. a midi synthesizer before he could take advantage of the system. But after thinking for a minute he said that his daughter might have to lend him the keyboard he had bought her!

But in general the 30 odd straightforward CDTV titles in various stages of development being shown on the stand were very well received. Commodore expects to have a minimum of 30 CDTV multimedia titles available at the time of launch, with more than a hundred planned by the end of the year.

The initial non-games titles will include interactive reference materials such as the World Vista Atlas and the Illustrated American Heritage Encyclopedic Dictionary; interactive versions of children's classics such as Cinderella and the Tale of Peter Rabbit, will be supported by a wide range of educational titles designed to help children from toddlers upwards to learn more easily and to have fun; leisure titles for gardening, cooking and sports; and business, self-improvement and adventure titles are planned.

Some truly innovative titles were

previewed in Las Vegas. Music Maker from Music Sales offers 17 digital audio arrangements of well-known songs. But rather than just-listening, Music Maker allows the user to play along even if he or she has no musical training. McGee, an interactive cartoon for young children earned a lot of praise. There were also on-screen colouring books and excellent programs for educating young children.

Other titles show included the Silver Palate cookbook series (to be retitled as New Basics Electronic Cookbook); the Doctor Wellman Family Medical Advisor, The Timetable of Science and Innovation and Timetable of Business and Politics.

One extremely timely title: "Advanced Military Systems — the Gulf Conflict" was shown. This title showing the weapons systems on both sides had been put together in just two months from scratch and was of a surprising standard.

Several significant new signings were announced at the show. These included The Guinness CDTV Disc of Records which offers audio, still pictures and animation. Disney Software's Mickey's 1, 2, 3 where Disney characters — Mickey, Donald and Pluto — help Mickey plan a birthday party which at the same times teaches younger children how to count. Grolier's Electronic Encyclopedia comprises all 21 volumes of Grolier's Academic American Encyclopedia on a single disc and includes 30,000 articles, more than 9 million words, and 2,000 pictures, illustrations and maps.

One very American product nicely illustrates that this technology is not simply about passing information in one direction but can be used to help make decisions. Cinemaware has a pro football game, where play is supported by coaching opportunities. The user can test offensive strategies against various types of defense, se-

lect players based on opponents' strengths and weaknesses and develop their own playbook.

The suggested retail price of CDTV titles is expected to range from \$30 to \$100 (£15-£50 approx) with an average price of \$50. Commodore predicts that the average cost of software in the UK will be around £25. This seems a little optimistic.

Visitors to the show were universally appreciative of the software. Carolyn Storm, a marketing executive from Las Vegas said: "All the things I have looked at have been really good. I like the children's stuff particularly." James Pease, a video dealer from Montana spent a lot of time studying a children's colouring application with a young son on his shoulder. "We haven't seen much but it will probably replace a lot of colouring books." But he added that he was not sure that it would be worth the cost.

Even sober suited executives from large American banks confronted with Gulf Conflict title and World Vista Atlas were given to making statements such as "what I have seen is great," and then adding "but it's my company's policy not to talk to the press."

All in all the only real criticism was the price of \$1000 showing that Commodore will have a lot to do to explain the technology to the great American public. This is a job in which the company knows it has to succeed.

But speaking of pricing. Confusion reigned when Nolan Bushnell, General Manager of Commodore's Interactive Consumer Products division, told assembled journalists at the pre-show press conference that the price would be £699 in the UK. Five minutes later UK Managing Director Steve Franklin dashed round British journalists asking them not to quote that price. Commodore UK has now set the price target at "under £600"; which seems a pretty reasonable price.

Probably of more interest to existing Amiga users is the announcement of a plug peripheral that will convert a standard Amiga 500 into a CDTV machine. Available in UK in June and expected in the UK by June as well. No price has yet been agreed. The add-on also offers a SCSI port on the back.

The company also previewed some of its development work on full time motion video. This included both cartoon and video pictures in colour and using greyscales. While neither were particularly impressive this shows that the company has by no means given up on full-motion video. Company representatives often reiterated that once there had finally been agreement for compression algorithms the company intended to go flat out for FMV.

CDTV is due to go on sale in Dixons at the end of March.

S.H.



# *Printer of the Month*

# **Citizen 124D**

***Performance, not luxury, is what the 124D 24-pin impact printer offers. Pat Kelly takes it for a test drive....***

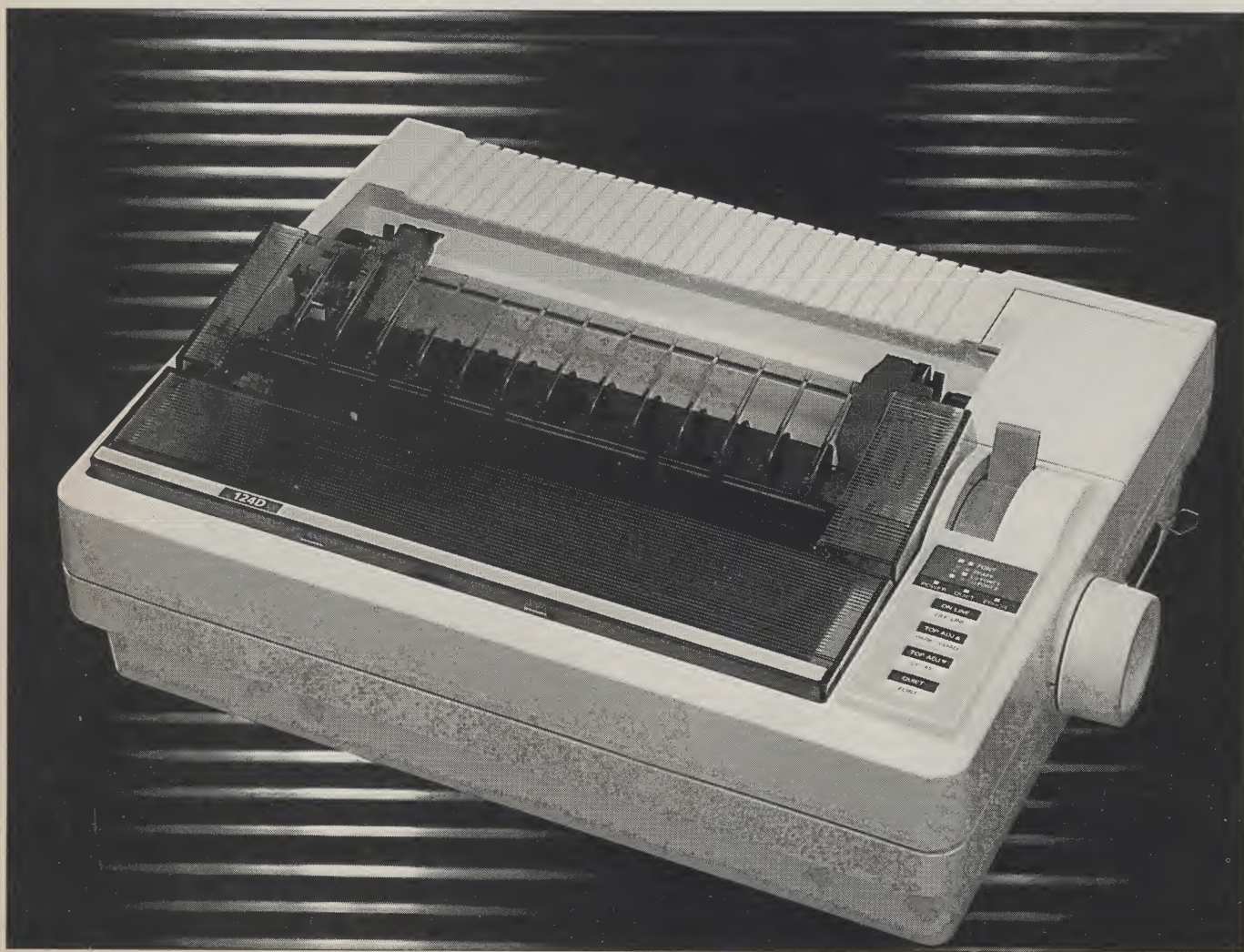
**C**itizen have launched the 124D as a low-cost entry into the evergrowing 24-pin dot-matrix (impact) printer arena and as you would expect it offers the educational, home, and small business user a higher quality print at a low cost.

The 124D is the 24-pin version of Citizen's popular 120D+ 9-pin printer, which has been popular across Europe.

Whereas other 24-pin impact printer manufacturers (including Citizen) have introduced high specification letter quality printers, with the belief that their buyers want a printer with much greater options than those of a buyer of a 9-pin printer, Citizen has produced a printer with 9-pin features and given it a 24-pin printhead, and thus letter quality as opposed to the inferior near-letter quality associated with

9-pin printheads. The result of this no-frills policy is a much more affordable 24-pin printer with a look, feel, and sound associated to that of a 9-pin machine.

The 124D, an 80-column printer, is small and light, again comparable to that of its 9-pin relative. The lightness reflects the build of the printer; it uses light components and it has been designed and built with the maximum of economy, this





is particularly noticable in its tractor and paper feed operations which have a less smooth feel than more expensive printers. That is not to say that the printer does not have those features supported by others in its ilk, or even that it does not perform them well. It is fairer to say that it is well-equipped, but performs less gracefully than most other 24-pin printer.

***"The lack of fonts is not a major consideration for most of the fonts included with other printers are rarely used"***

The panel, positioned behind the paper-feed select lever, comes away from the casing and allows easy access to the DIP switches and serial port. The DIP switches can be modified to set the startup configuration of the printer. These selections include; emulation mode, international character set, pitch and font selection, and form length amongst others. The serial connector is required for use with some older makes of computers and is standard in most printers for compatibility reasons. Replacing the panel cover is a little irritating as it does not seem to want to fit in place. However, persevere and it eventually does — it is all in the technique.

The two types of paper feed are supported; tractor feed, and friction feed for single sheets. There are options for an automatic sheet-feeder which allows the user to print several long documents with a hands-free operation, and a semi-automatic sheet feeder which allows the user to place a sheet in the feeder just as the other has finished printing. The latter is a newer and less expensive extra. The standard sheet feeder only accomodates a single sheet at any time and its design is flimsy - the whole unit came off in my hand several times!

***"The result of this no-frills policy is a much more affordable 24-pin printer"***

The tractor feed has features which were once luxury items, but are now standard specification. These include an automatic paper park/load, which is useful for re-aligning page starts in addition to allowing changing over to sheet-fed paper. However, when reloading the paper from its "parked" position the on-line, or "ready", status is not automatically activated and must be set manually. When using the tractorfeed for line printer



operation many users prefer to use a bottom load, but no option is available on the 124D for this set-up.

The print output is high quality and three fonts are available; draft, courier (the most popular typewriter font), and Times Roman. These fonts can be selected from the control panel and are shown as "draft", "font 1", and "font 2". The lack of fonts is not a major consideration for most of the fonts included with other printers are rarely used. The graphics print output is similar to that of most 24-pin printers, i.e. up to the maximum 360x360dpi graphics of IBM Proprinter X24 printer driver. The quoted draft speed of 120 characters-per-second (cps) and the letter-quality speed of 40 cps are lower than those of other 24-pin printers, but on normal-sized documents there is rarely much difference in operating speeds.

In *AUI* January 1991 we tested the Star LC24-200 and compared it to a car

- the Audi. If I were to perform a similar comparison, for the Citizen 124D, I would compare it to a Ford; reliable, well-equipped, functional, but lacking in subtle quality and luxury. However, it is unfair to compare the two as Citizen has a "luxury" 24-pin model, the Swift 24, and the 124D was built to perform the duties it does at the very reasonable quality and price at which it is offered.

Overall the Citizen 124D offers the low-end user a competent 24-pin printer at prices not previously obtainable.

**Product:** Citizen 124D

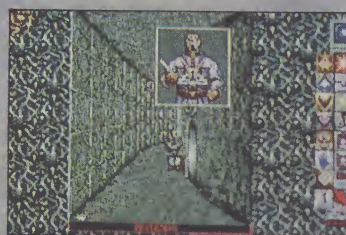
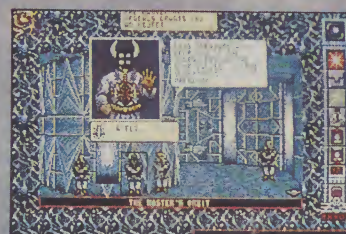
**Price:** £323.00 RRP

**Contact:** Citizen Europe Ltd.,  
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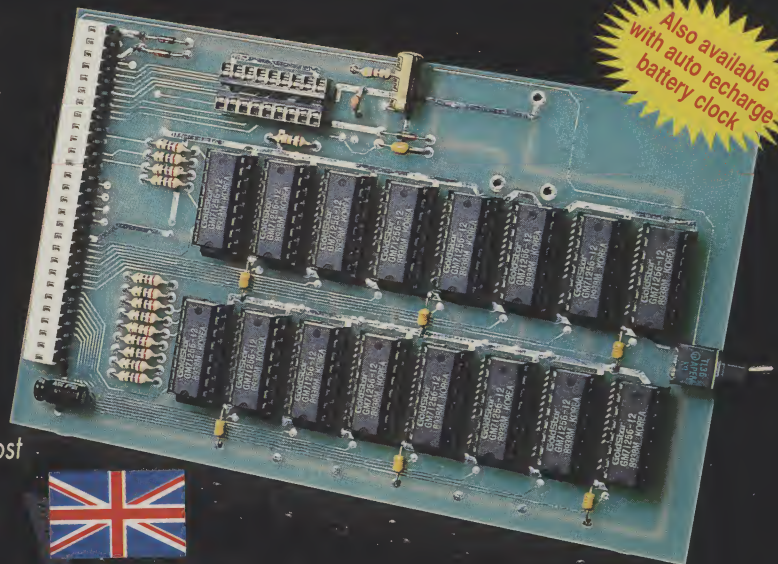
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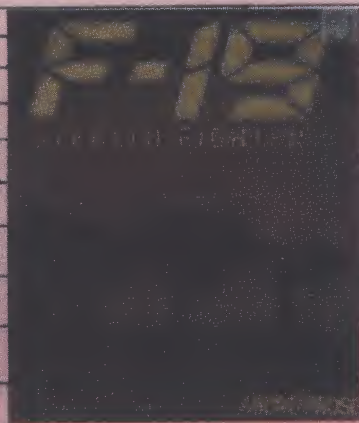
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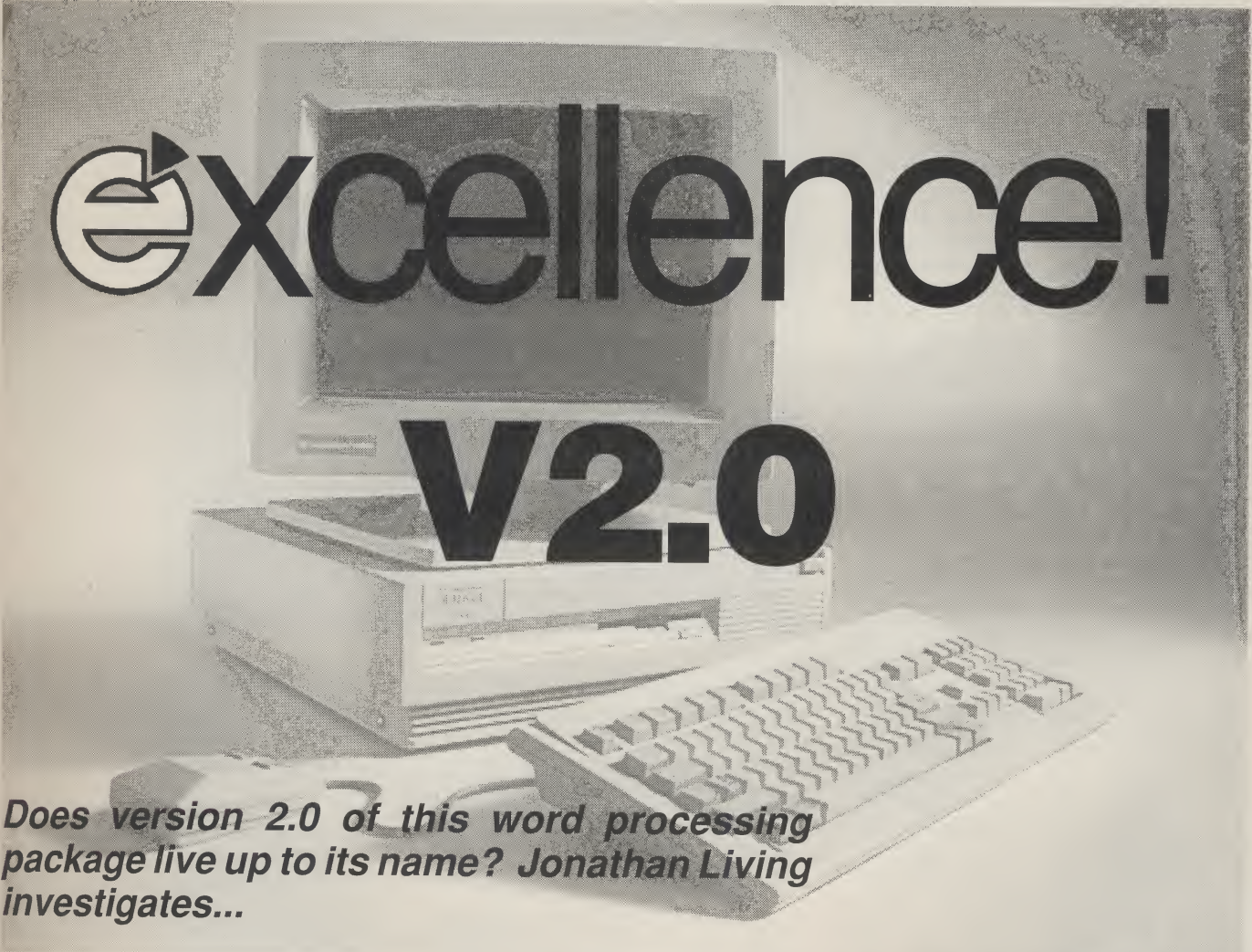
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# excellence!

## V2.0

***Does version 2.0 of this word processing package live up to its name? Jonathan Living investigates...***

**T**here seems to be some competition amongst software houses to produce the most intimidating product packaging around, even though the programs themselves may not live up to the standards the presentation implies. Now, take a word processor, call it Excellence!, sell it in a box the size of two A590s stuck side-by-side and you may be asking for trouble.

Micro Systems Software has just released Version 2.0 of Excellence! for the Amiga range of computers and, although no really major changes have been made to the program, this version definitely improves upon its predecessor. Excellence! is now supplied on 3 disks; one each for the program, the dictionary and the thesaurus. Interestingly, none of the disks contains a copy of Workbench - your Amiga has to boot from a standard Workbench disk before the program can be loaded. Also supplied as part of the package is a 300 page ring bound manual. Version 2.0 now requires 1MB to run and thankfully all program features are available with this minimum amount of memory.

Excellence! belongs to that now none-too-rare breed of graphic word proces-

sors, which use Commodore's bitmapped fonts - the bane of all serious DTP'ers on the Amiga. At a time when Gold Disk is attempting to establish Agfa's Compugraphic font technology as an Amiga standard with programs such as Professional Page V1.3, MSS re-release Excellence! using the dreaded "jaggies"! Perhaps MSS will be persuaded to use outline fonts with version 3...

***"The program is bursting at the seams with features all aimed at the professional user. To start with, there is a 140,000 word (American) dictionary which even has a spell-as-you-type function."***

Once the program has loaded, the user is presented with the Excellence! backdrop screen and an untitled document window, ready to accept type. I make this distinction since the program supports multiple document windows - useful for cutting and pasting text between

projects. This approach is not a complete solution, though; for example, printing one document causes Excellence! to "sleep" and prevents the user from editing a second document simultaneously.

One thing that does become apparent very quickly is this program's foundations, which are deeply buried in the DTP camp. Not only does Excellence! expect margin limits in measurement units (centimetres or inches) rather than character positions, it also allows setting of the line spacing (leading) down to a single point (1/72"). Excellence! must also be one of the few Amiga programs that allows previewing of two facing pages. Unfortunately, this feature is implemented in a very restrictive manner - even-numbered pages are only permitted on the left hand side of the double page spread, with the odd-numbered following page on the right hand side. This means that page 1 of your document is always left out in the cold; there is no even-numbered page before it, to appear on the left hand side of the screen.

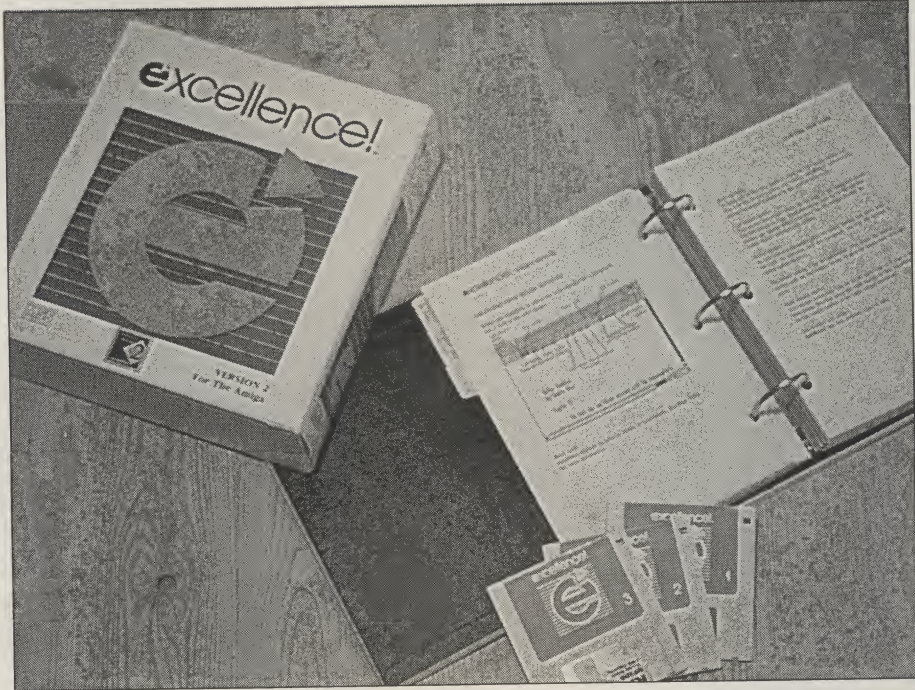
Excellence! also allows the obligatory importing of IFF bitmapped graphics in low, medium or high resolution formats.



Be aware though, that because the program uses a medium resolution screen with only 3 bit planes (8 colours), imported graphics that do not adhere to this standard will have a distorted aspect ratio and will suffer from a reduced palette size. The aspect ratio can be corrected if need be, by using the sizing and cropping gadgets around the graphic, once it has been highlighted. The ALT key is used to distinguish between a sizing and cropping operation, while holding down the SHIFT key enables the graphic aspect ratio to be distorted. Note also that Excellence! does not alter the original 8 colour palette to suit the graphic being imported. The program simply re-maps the palette of the graphic to its own existing one, so it is worthwhile having a good idea of the range of colours in the image being inserted, and setting the preferences of Excellence! before hand to include the 8 most popular. The program treats each graphic as a single character, which is why it is not unusual to find a low-res drawing of a Porsche 911 turbo embedded half way along a line of text in your document! But this approach is typical of the immutable nature of Excellence!; using this method, text runaround is simply not possible.

As a final insult to us DTP'ers, Excellence! has the ability to arrange text into a number of newspaper-style columns. But the columns are only allowed to run for the whole length of the page (not much use really) and will probably leave you wondering why MSS even bothered adding this facility.

As a straight word processor, Excellence! scores a somewhat higher mark. The program is bursting at the seams with features all aimed at the professional user. To start with, there is a 140,000



word (American) dictionary which even has a spell-as-you-type function. Supplement this with a massive 1.4 million

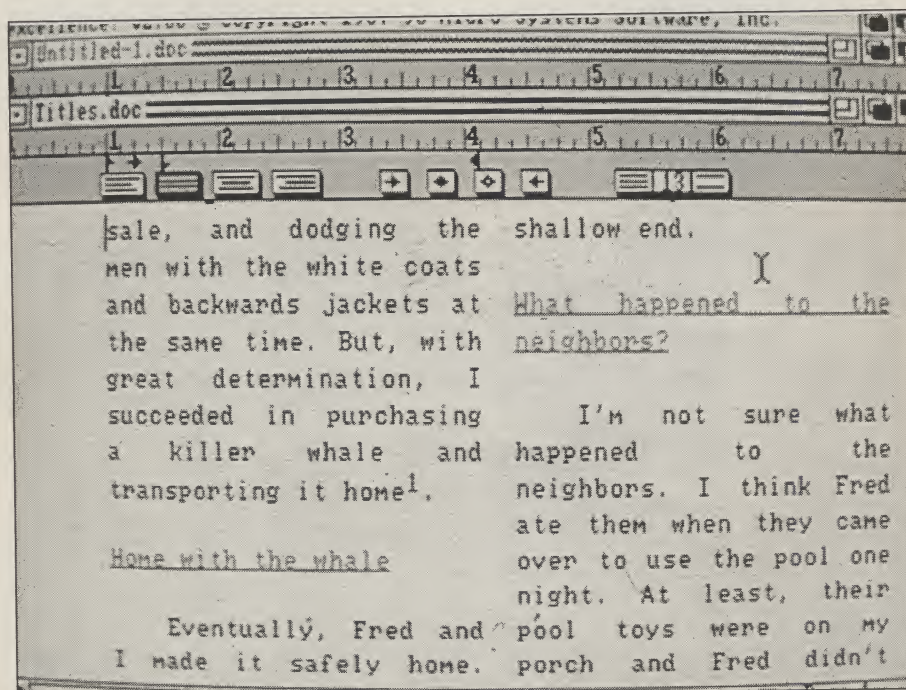
***"Version 2.0 runs quite happily on a 1MB, twin-drive set up and despite its graphic origins, most operations are executed with surprising speed."***

word thesaurus (complete with definitions) and you begin to get an idea of the very high standards of Excellence! in this department.

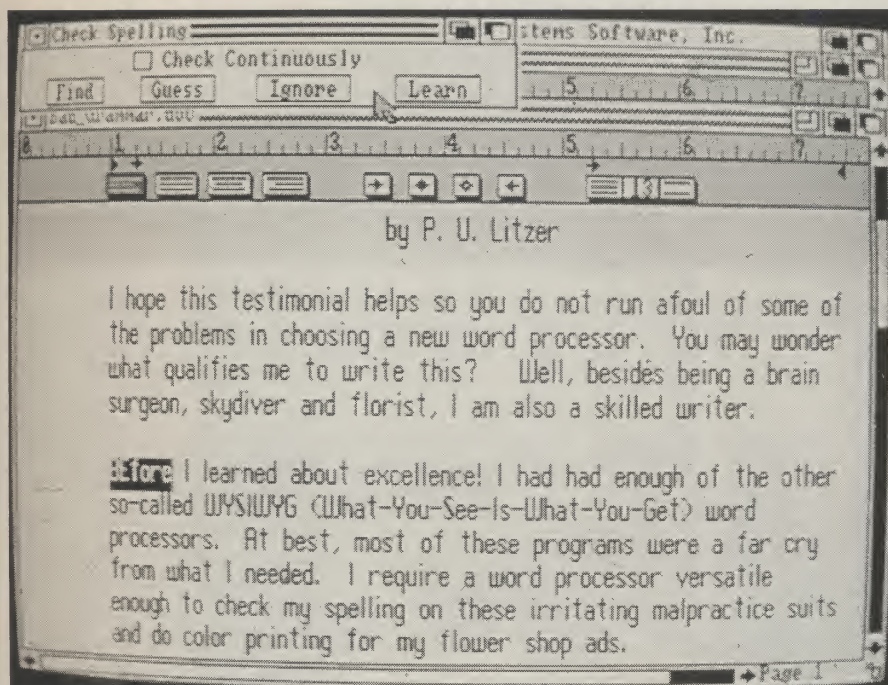
Many of the word processing features work by accepting highlighted text from the document. Some of the more major facilities which do this are outlined below:

1. Excellence! will accept the marked text as a table of contents (TOC) or index entry. When a document is complete, select "generate TOC" or "generate Index" and the contents or index listing will be placed in the system clipboard, ready for pasting out. In the case of index generation, Excellence! will find and include all occurrences of the entries you add.
2. If the marked text is a true mathematical expression, Excellence! has a facility to evaluate it and place the result in the system clipboard.
3. Blocks of marked lines of text can be sorted into ascending or descending alphabetical order.
4. A glossary function exists which allows the user to record commonly-used graphics and text. The saved items can then be recalled from the glossary menu or by using a key-combination which the user may assign at random to each entry. The glossary can also be used to produce key macros, enabling a sequence of menu operations and mouse functions to be executed by a single key-press.

Excellence! has all the usual features associated with a professional word processing package, including intelligent pagenumbers and time/date insertion, binding spaces and hyphens and header/footer inclusion. Margins and text justification (right, left, full or centred) can be set line by line or globally and there are also four additional tab functions which







include decimal-point-centred typing. Excellence! even boasts a grammar checker. Once a phrase file has been read in, your document is systematically checked for punctuation and grammatical errors, including cliché and passive voice modes of writing. If the summary option is chosen, the "Flesch" method is used to evaluate your prowess with the English language. Your scribbles are compared for readability (using a histogram) against a Hemingway short story, the "Gettysburg Address" and a typical life insurance policy! (Of course, you will come on top).

The summary option will also perform word and paragraph counts and will display statistics such as the average number of words per sentence, etc. The program does not, however, prove too well-equipped in dealing with specialist characters. While Excellence! possesses an "insert literal" option, the range of characters available does not even include some of the more usual letters of the Greek alphabet, making technical and scientific report writing somewhat difficult.

When you finally decide to print your finished document, any of 4 modes of operation can be used. "Graphic" mode causes a full bitmapped screen dump of each page of your document to be printed. In this case, Excellence! honours all the printer settings made from within Preferences on your Workbench disk. "Draft" mode causes Excellence! to substitute all the on-screen fonts with the printer's own draft characters. In this mode, bitmapped graphics are not included with the final output. "NLQ" mode acts in exactly the same way as "Draft" mode but Excellence! uses the printer's own default (near) letter quality font. Mixed

mode printing (MSS techno-speak for NLQ) also attempts to include graphics with the printed output but fails dismally. The manual states that in order to obtain the most faithful output in this mode, your document should be written using

***"The manual supplied with the review copy of Excellence! was simply the version 1 manual with a 60 page addendum grafted onto the end. But despite this, it's a very good example of its kind, with brief (but educative) tutorials and easy to use reference and summary sections."***

Topaz 11. But unless the printer preferences are set "just so" (ie, to dump a graphic image at just the right size) then severe page misalignment occurs; and in all cases, embedded graphics (and their neighbouring text) are never correctly formatted. Of course, to remedy the whole problem you could always use the PostScript printing mode, provided you can afford the £2000 for a PostScript laser printer (or £7000+ for a colour version).

The failure of Excellence! to combine normal printer text and Amiga bitmapped graphic dumps is perhaps indicative of a similar but more fundamental failure to unite the worlds of desk top publishing and word processing. After using Excellence!, I remain unconvinced of the need for a graphic word processor. Serious DTP'ers should still go for a combination

of something like PageSetter V2.0 and Scribble; the pair can probably be purchased for around the same price as this package.

I can imagine Excellence! being used in one of two situations: i) As an easy-to-use graphic text editor for amateur presentations which require a splash of colour and the inclusion of some rough bitmapped images and ii) As a professional word processor for all but the most technically or scientifically based reports (due to the lack of special character support).

Version 2.0 runs quite happily on a 1MB, twin-drive set up and despite its graphic origins, most operations are executed with surprising speed. But, while the spell-as-you-type function works quite quickly even off floppies, the full spelling checker and thesaurus are horrendously slow and are only really usable from a hard-disk. Not once during my use of Excellence! for writing this review (and many other reports of 10-15 pages in length) did it cause the Amiga to "Guru", which leads me to believe the program is virtually bomb-proof and bug-

***"In conclusion, version 2.0 of Excellence! should definitely be included on your short-list for professional word processors."***

free. The manual supplied with the review copy of Excellence! was simply the version 1 manual with a 60 page addendum grafted onto the end. But despite this, it's a very good example of its kind, with brief (but educative) tutorials and easy to use reference and summary sections. The hard-disk installation program supplied with Excellence! is one of the most flexible I have seen and the whole program (dictionary, thesaurus and all) was transferred to my A590 in a matter of minutes. Just make sure that you have at least 2MB spare on your hard-disk...

In conclusion, version 2.0 of Excellence! should definitely be included on your short-list for professional word processors. HB Marketing, the UK distributors of Excellence!, inform me that the program's recommended retail price has just fallen to £15 - an added incentive for buying this package.

J.L.

**Product:** Excellence! V2.0  
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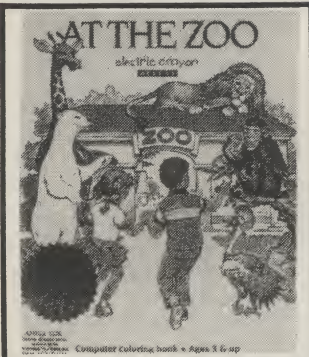




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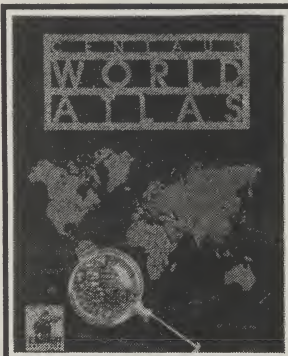
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# GRAPHICS AND THE AMIGA

## The WOW! Factor...

If you look at the graphics in the games that we review in **AUI** now, such as *Speedball II* in this issue, you are immediately struck by the single greatest influence in the success of the Amiga... the visual impact that this astonishing computer wields. It was the sheer look of the things it could put up on its screen that created the WOW! factor - that moment when the gasp rises irresistibly up through the throat of even the most hardened computer user. *Deluxe Paint!* WOW! *Digiview!* WOW! *Defender of the Crown!* WOW! *Sword of Sodan!* WOW! And so many other moments which have brought that combination of surprise and delight the Amiga has made through its special contribution to the ever-moving on technology of our times.

**AUI's** special section this month "The Amiga and its Graphics" offers you a further trip into the land of the WOW! factor. From font packages to professional level software, from the beginners' stage and tips on how to get better up to packages that can make you enjoyably creative - and earn from it! - Amiga graphics has everything and we try to give you the latest developments in this exciting field.

Of course, you can find 2D, 3D, even 4D software for the Amiga, software that will let even the wildest Amiga User imagination have free rein. It sometimes makes us wonder that so many paint programs have been created but each seems to have differing qualities. Below, we list the 2D packages, all of which are within the reach, both financially and creatively, of virtually all Amiga users. Check them out before you buy with your dealer. Ask about the varied advantages - and disadvantages.

Our personal favourites are *Photon Paint* (shortly to be *Spectracolor* in its V 2.0 form), *Digipaint* and, of course, *DeluxePaint III* (but V 4.0 is coming!). And for kids - of any age - the marvellously simple "MY PAINT", a terrific entertainment. But what's true for kids also goes for grown ups. The greatest entertainment your computer can give you is to let loose your own creative powers. And graphics on the Amiga does just that! It gives you the chance to share not just in looking but in doing... It brings you in and makes you a real part of the WOW! factor. **Who could ask for anything more?**

### LIST OF 2-D GRAPHICS

Program	Publisher	Price	Class	Memory
Chroma Pain	Designing Minds	£20.00	64 Colour	512k
Deluxe Paint III	Electronic Arts	£70.00	64 Colour	1Mb
DigiPaint 3	Newtek	£50.00	Ham	512k
Express Paint	Qxxi	£70.00	64 Colour	512k
Images	Aegis/Oxxi	£50.00	Novice	512k
Macro Paint	Lake Forest Logic	£70.00	RGB	1Mb
Mega Paint	Psuedo Vision	£125.00	RGB	2Mb
Photon Paint 2.0	Micro Illusions	£75.00	Ham	1Mb
Spritz Paint	Oxxi	£40.00	Novice	512k
The Graphics Studio	Accolade	£25.00	Novice	512k
The Graphics Workshop	Holosoftware Tech.	£50.00	64 Colour	1Mb



# 3-D Professional

*Peter Lee takes on a state-of-the-art 3D modelling and animation program which brings the real world to your Amiga. . .*

**D**epth, texture and movement — three elusive elements which allow a flat computer screen to mimic what we perceive in the “real” world.

Simulating them on the Amiga has been a kind of search for the Holy Grail — with programmers hitting a number of dead ends on the way.

After all, the problem is quite staggering — how to create apparently solid objects of differing properties in correct spatial relationships to each other, and at the same time allow the user to create the illusion of reality within this man-made universe. Difficult, yes; but a new high-end product proves it is not impossible on the Amiga; thanks to a major breakthrough which places the world, figuratively, at your fingertips.

The release of 3-D Professional from Progressive Peripherals and Software breaks new ground and addresses most, though not quite all, the problems of depicting reality on a VDU.

The program is a professional tool which manages to combine an ease of use and quality output to a level which seem likely to establish it at the forefront of 3D modelling and animation.

The program is supplied with very hefty

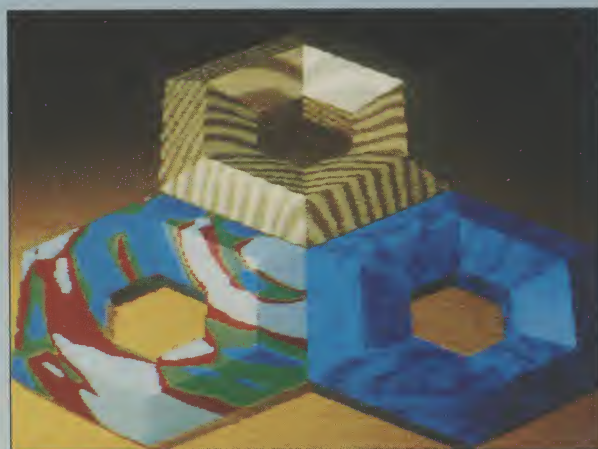
documentation, which includes tutorials, a reference manual and quick guide, plus a two hour videotape in which a soothing American voice runs through early learning, displaying the program's screen as functions are explained. The whole package comes in a substantial box almost as big as the Amiga monitor — we are, after all, talking major product here.

So the box is big, the manuals chunky — what about the program? Happily, just as impressive. It is a sturdy, well-designed and thorough piece of work which manages to combine the best aspects of ray tracing — multiple light sources, surface texture rendering with reflective and refractive properties — with outstanding 3D modelling facilities and animation techniques.

The program needs a megabyte of RAM as a bare minimum, though the type of user at whom it is aimed at will no doubt, due to the hunger of Amiga graphics, have much more memory.

Easily installed on a hard drive, 3-DPro opens into an NTSC work window with its tool icons ranged down the right; the good news is that when full-scale animation or rendering is called for, scenes are displayed and saved in the full PAL screen format.

Control options from the large-scale pull-down menus all have keyboard equivalents, as you would expect; but unlike some of the latest professional Amiga offerings,



there is no on-screen help facility, and it often becomes a chore to keep looking things up in one of the manuals.

But that problem is simply an offshoot of the large number of options and commands which allow your universe to be created.

***“By adding supplementary shapes, combining objects by re-sizing, rotating and so on, pseudo reality quite literally begins to take shape”***

In line with the general concept of computer 3D modelling, the program offers a series of primitives — pre-configured shapes which act as the building blocks for most of your needs. There is a library of 13 basic shapes — from cubes to spheres, cones to wedges, plus the ability to ‘grow your own’ with a trio of editing tools, called the lathe, conic and profile editors.

These allow for the foundations of highly complex objects to be laid, such as boats, faces and machinery. Afterwards in the main editor, by adding supplementary







shapes, combining objects by re-sizing, rotating and so on, pseudo reality quite literally begins to take shape.

***“There are a number of pre-sets — glass, steel and stone for example —but you can override any value for truly surreal results”***

Object creation is simplified by the use of icons, though constant reference to the 3D views has to be made, because it is all too easy to re-size an object so it looks good from the front, only to find it is way out of whack in another dimension. Front, back, top, bottom and side views are supplemented by the camera view.

The camera can be positioned anywhere in space and pointed at any angle. Likewise, up to 99 light sources can be placed and edited, for instance to give a coloured light, or to spotlight an area; varying degrees of haze are also available. The camera's angle of view is also user definable, and during animation you can move the camera around and in and out of the scene instead of simply manipulating the objects. (Stick around for more details of the animation offerings - they are worth waiting for).

Together with object creation the program offers a number of 'extra' facilities which add even further depth; there is an in-built landscape creator which can be configured to your satisfaction. Using fractal algorithms, the program creates an object containing rolling hills or peaks, mountains and so on.

Cosmetically this is very pleasing, but there is a degree of randomness about the landscape generation which means you may have to create a number of images before you hit one which suits you.

3-DPro is also good at growing trees; again, using fractals, trees of any shape and form can be programmed and 'grown',

with user input controlling how gravity affects the branches, how the leaves will look, and how many will be placed on the branches. Some bizarre mutants can be achieved this way, but normal-looking trees are easily defined. It might have been agreeable for the manual to give data for specific kinds of trees, though, rather than leaving it up to the user to hit on, say, the shape for an oak or larch.

The program also offers a 3D text creation tool. Using any Amiga bitmap font available on your system, it will try and extrude it in any direction you specify. I say try, because the text objects I tried to create gobbled up a lot of memory, and frequently aborted through insufficient reserved space.

Once the lengthy extrusion conversion progress is complete, the text is treated like any other object, and that includes the ability to specify a texture.

You can also try converting a bitmap brush into an object, but the DPaint III brushes I wanted to convert were made difficult by trying to guess the amount of memory space to allocate, which led to a constant stream of error messages.

3-DPro has several in-built surface mapping textures; marble, wood, brick, checker, ripple and snowy among them. These can be individually configured for best results, and form wonderful partners with light sources, giving true-to-life shadow and highlight.

Objects, too, can have their physical attributes edited; index of refraction, transparency, reflection, glossiness and so on. There are a number of pre-sets - glass, steel and stone for example - but you can override any value for truly surreal results.

Editing objects can be either wireframe or shaded, and in each case you clearly will not get any texture or attributes. To view the scene you need to render it, and here 3-DPro offers a number of options to suit most needs. Of most interest are the smoothing modes, which include Gourad - the fastest smooth shading mode available, though still unable to eradicate all chunkiness, and Phong - the prime display mode.

***“Loops can be used to sequence a number of moves — perhaps simply rotating the scene whilst the camera remains stationary”***

Phong computing takes a while to complete; it removes all the individual facets which make up each object, and since it works on a pixel level can accurately represent all your surface attributes, as well as clearly showing the scene's specular (glinting) highlights.

Numerous complex display attributes can be used; image filtering will give a smudged, pastel-looking finished screen, and when using transparent objects you can invoke the Curve Opacity mode which will more accurately render the effects of light through transparent objects, giving





the impression of bulk to orbs, vases and glasses.

All the Amiga's display modes can be specified for output, though HAM is the only one which will do justice to them. The time taken to render an image depends on its complexity, but it is still much faster than a ray-traced image, with which it has much in common in terms of finished output.

One of 3-DPro's biggest assets in my view is the simple animation language it incorporates, plus the ability to work on a series of keyframes and construct an animation itself.

Unfortunately there are few script examples on the program's disk, but learning how to use the 56 commands is straightforward. Scripts are simple text files which are loaded and run once your scene has been edited. Loops can be used to sequence a number of moves - perhaps simply rotating the scene whilst the camera remains stationary. But more advanced users can move the camera, alter the light colour or rotate selected objects.

In creating an animation, each individual frame has to be rendered in accordance with your display settings (you can test an animation on wireframe scenes if you like), and then an Anim file built up. High definition, complex scenes can take all night to complete, so you may well have to leave the computer cooking while you sleep.

But the results are truly wonderful, judged against previous Amiga programs I have used. Anyone with an interest in animation will be well satisfied with the quality. The power of the program makes for some rewarding and stunning moving images. It has to be stressed, however,

that while modelling programs are excellent at what they do, there are simply some objects too complex to consider, so don't expect to be able easily to define things such as a recognisable face or a natural-looking hand with moving digits.

Other features of one of the most comprehensive programs in the field include: output to Postscript, X-Specs, the Mimetics Frame Buffer, Microillusions Transport controller software, plus support of ARexx and support for the 68020/68881 processors, which speed up the work considerably.

Included in the package is another program, called Animation Station. This is a stand-alone Anim file editor which allows limited special effects over a number of frames, plus cutting and pasting sequences or frames.

This is a nice bonus, and can perhaps be used to correct any slight anomalies in a completed animation. After all, it may have taken hours to render, and maybe the camera got too close to an object for comfort.

The user interface is not too friendly, and the thought which went in 3-DPro has been skipped here. But some good effects are possible - such as moving a brush over a number of frames, or merging in a background image (which in fact can be done in 3-DPro itself, as can foreground image overlay for some interesting parallax effects).

The program multi-tasks happily, though this will obviously slow rendering times; but at least you can get on with something else while the number crunching is going on. And the program generously supports data created with the likes of Videoscape 3D, Sculpt 3-D, Turbo Silver and Forms in Flight 1.



## Conclusion

3-D Professional lives up to its name, and its price tag. This is a high-quality, well-designed professional tool which succeeds in marrying the worlds of 3D modelling, pseudo ray-tracing and animation. The number of options available are a major attraction, and the speed when compared with other rendering packages is very favourable. No major grumbles, apart from the need for an on-screen help option (at this standard, I would have thought it a must). But a real pleasure to use, with superb results once the intricacies are mastered. The documentation is excellent, and the 2 hour introductory video is wonderfully produced. Highly recommended.

P.L.

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## Second Opinion – Barry McCarthy offers his opinion

Caligari has set a new standard in interface design but 3-DPro does not attempt to follow in these footsteps. It's a much more traditional affair, with flat views from all sides and a user definable camera view. Although it is very accurate and it is in shaded 3-D (you can see what your scene ACTUALLY looks like), it just doesn't feel as intuitive or natural as Caligari does.

3-DPro wins hands down on the options front. You really can fine tune the details of your scene to a minute level. It may well take a long time to get to know everything (or even find everything!) but I feel that there is nothing I couldn't achieve somewhere, somehow. Caligari always felt beautifully fluid in use but maybe a little limited in flexibility.

The drawback of 3-DPro's work display is the inevitable trade-off with the speed of screen re-draw (in shaded 3-D). Slow on a basic 68000 Amiga but respectable on a 68030 Amiga. I do feel, though, that these programs really are designed and aimed purely at the professional market.

3-DPro's object manipulation is fairly well endowed, with some excellent special tools like Lathe. Although there are some notable omissions like bending and vertex editing.

Objects themselves can be edited to a very fine degree: How it's rendered on a screen, colour, transparency, roughness, refraction, reflection, specular, glossiness, dull to polish, flat to mirror, pre-set qualities (eg: plastic, porcelain . . .), texture (eg: marble, snow(!) . . . all of which are editable!), precise bit by bit object editing (ie: parts of an object can all have different qualities, colours, textures etc . . .) and so it goes on.

Unlike Caligari's single basic output format (except in the full

£3000+ Broadcast version), 3-DPro outputs to ANY resolution or format, including HAM, 2024, X-Specs (3-D), RGB (up to 16.7 million colours), custom size, PostScript (Laser Printer), Single Frame Video Tape Recorder . . . the images and animations will interface directly with ANY Amiga program.

The rendering speed is very variable, depending on the complexity of the scene and your choice of materials. 3-D Professional does NOT ray-trace. Instead, it uses special smoothing algorithms such as Gouraud and Phong and it's own shading calculations. This means reasonable rendering time and good images. As always, there is a trade-off. There are no shadows or reflections as in ray-tracing (a Ray-Tracing module will be available soon). The images can still look quite stunning and I would personally have to choose this fast option as opposed to hours or days of ray-tracing time (Time, after all, is Money).

Animation is achieved with a script language like Caligari's animation module. This is also supported by several graphic animation tools like key-framing and visual 'on-screen' frame set-up.

Both products seem to have taken almost the same course here, but I wish they had stuck more to the spirit of the interfaces and provided an intuitive and graphic interface for animation.

VERDICT - 3-D Professional is a COMPLETE 3-D package with almost EVERY option you could ever wish for. The interface is well designed without being ground-breaking and it does the job. The images and animations are of a very high quality and fit into the Amiga range of software seamlessly.

I want to produce impressive animations from ideas in my head and with this program, I can.



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# CALIGARI

*Caligari by Octree Software is a three dimensional design and animation system for the Amiga. Barry McCarthy tests the 'consumer intro version'*

## OF INTERFACES...

**C**omputers are not very clever things (despite what a lot of people may think). They can only do what you instruct them to do, hence the famous 'GIGO' — garbage in, Garbage out. Unlike humans, computers can do nothing

called GUI's (Graphic User Interfaces). We interact with a selection of interrelated symbols (Icons) and phrases or sentences (Menus), using a cute device called a mouse. They say a picture says a thousand words and I guess this is the principle

behind the GUI.

So, we would hope that this new approach would be the most natural and the easiest to use. Unfortunately, this is not always the case. People just do not seem to produce human-like interfaces and more often than not, the interaction becomes an awkward and complicated process.

This is particularly the case when it comes to 3D design and animation packages. The problem is obvious. How do you represent a realistic 3D environment on a screen that is definitely two dimensional? First you take the traditional 'technical drawing' approach. This is long-winded and very unnatural. It is extremely difficult to visualise 3D objects by looking at three separate views. Sure, you can get used to it, like you could get used to a vow of silence. But surely there **MUST** be a quicker and more natural way? I mean we are talking productivity here. The quicker and more 'transparent' the user interface, the easier it is for you to be imaginative and creative and to simply concentrate on the job in hand.

**ENTER CALIGARI  
STAGE LEFT...**



on their own, they can not think for themselves, they are not conscious of their own thought processes, they can not be imaginative, creative or innovative.

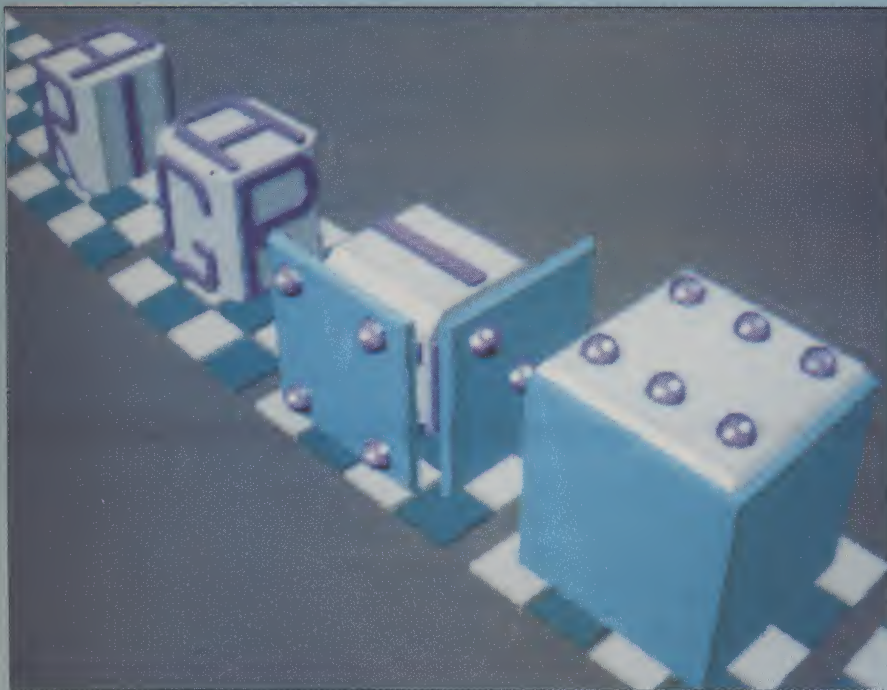
So, without human interaction, the computer is a dumb machine. It is here that we seem to have come across a problem. What is the most natural interface for a human being? That, according to the linguist Naom Chomsky, most unique of human attributes — language. Unfortunately computers can not understand our language and so we have to use an interface between them and us, an interpreter.

The traditional means of interfacing with a computer is by keyboard. Type in a huge list of instructions which will be able to interpret and produce the desired result from. This is sometimes called programming. It is more often called other things that are unprintable in this respectable publication.

Now, in this modern age we have things







Caligari has the most intuitive and natural interface that I have ever used in a 3D program. For the first time, I really feel that I am truly interacting with what I can see on the screen. The monitor becomes a window onto my new world.

The keyboard is almost completely redundant. In fact, I have not yet used it. Although it can be utilised for the input of numeric data, for such things as the translation of blue prints into Caligari.

First impressions of Caligari are that it is a professional, and well programmed tool. The interface immediately strikes you as being something just a little bit special.

## OVERVIEW

Upon entering Caligari, you are presented with a simple menu screen with several buttons. From here you either enter the object designer or the scene designer.

The OBJECT DESIGNER is where you design the separate elements or objects that make up a scene. Like most other 3D programs you can build, size, stretch, and rotate objects or parts of objects. All this is done using a collection of predefined PRIMITIVES such as spheres and cubes (This is very like REAL 3D). There is also a special tool for creating custom (hand-drawn) objects from scratch. Once a new object has been designed, it can be saved into the scene's database.

On now, to the SCENE DESIGNER. When you first open Caligari, it creates a scene called 'NEW-SCENE' but you can create one with any name and place it where you want in your system. This 'scene' is where all your objects and information about lights etc are kept. Every time a new object is saved or parameters altered, this database is updated.

The scene designer is simply used to load in and position, scale and rotate

ready-made objects and to set up the lighting. You can not change an object very much or create new ones without leaving and saving the scene and re-entering the object designer.

The final stage of design is of course the RENDERING MODULE. This is where you get to eat your pudding (as it were). All scenes are rendered in hi-resolution (16 colours) or medium-resolution (32-colours). You can pick separate objects and change their overall palettes. Decide the intensity and shininess of each object and re-render if you wish.

Rendering takes a long time on the first attempt but later re-renderings are almost instant.

## HOW DOES IT FEEL?

It is hard to describe the way that you use Caligari or the feeling that it promotes. I suppose it is a bit like moving the mouse and finding that the whole room tilts, spins and tumbles around you (in real-time). It is a beautifully fluid and free feeling. Within about 5 minutes of using this interface I was convinced that it is the most 'natural' and creative 3D interface that I have ever seen.

You work on a full hi-resolution screen with a thin menu bar across the bottom. The screen shows a square grid which is simply used for orientation purposes and does not render. This is where you also see your present objects, in full 3D perspective. You can pick an object or part and perform various functions on it, by pressing one of several menu buttons:

TRANS; move an object in X, Y or Z directions.

ROT; rotate it in X, Y, or Z.

SCALE; stretch/re-size in any direction.

MOVE; move your point of view relative

to the object.

ENCIR; encircle your object by moving round it in X, Y, or Z.

P/T; pan/tilt your view to look up or down at your object relative to the ground.

ZOOM; to effectively, change your viewing lens from fish-eye to telephoto.

You can also access further menus here, for example; grids and detailed numeric manipulation of objects.

The other major tools on their own pop-up menu bar are;

GLUE/UNGLUE; connect/disconnect bits of objects. It is important to note that Caligari 'remembers' this gluing order and complex objects can later be broken down into 'hierarchies' of primitive parts. A robot for example, may have an arm that can be 'swung' separately from the shoulder. Even better is the fact that Caligari 'decides' that it would be logical to swing the arm from the shoulder and not from another part of the arm. You can turn this function on and off at will.

EXTRUDER; This is the most powerful function in the object designer. It enables you to create free-hand flat, extruded or spun (lathe) objects. They can also have any number of holes in them and be controlled by a grid or by numeric limits or on-screen rulers. 2D polygons can be saved separately from objects, thereby saving disk space and loading time. Just load in your pre-designed 2D alphabet for example and extrude it into your scene when needed.

The amount of detailed manipulation is quite impressive. Take a simple circle. You can set the extrusion so that it extrudes at an angle for a leaning tube. Define one end as fully circular or degrees of squeezing from cut cone to full cone.

Although the PERSPECTIVE view is the preferred for most of the design process, there are the more traditional TOP, SIDE & END views if you wish. These are essential for precision positioning of objects.

## TUTORIAL VIDEO

Caligari also contains a tutorial video, of of Caligari-produced animations cut to suitably over-dramatic music.

I am convinced that the video was made by Harry Enfield. It is wonderfully entertaining. Narrated by the programmer and designer of Caligari himself, Roman Ormandy. A refugee from Czechoslovakia and it sounds just like it. The picture is blurred and the narration sounds like it is coming from a bush.

But do not let the humour deter you, because after a while I found that it all started to make sense and when I went back to Caligari, I felt far more confident to just dive in. I now feel that all application software should come with a tutorial video. Even if it's just a rough, unpracticed and unedited affair, it might help the more cautious amongst us to get started and feel more immediately at home with our new piece of software.



## THE VERDICT FOR

The best 3D interface I have ever used. One of the fastest screen updates to be seen.

Incredibly easy to get into and a very shallow learning curve. It is extremely intuitive.

Very powerful and adjustable tools.

Quick at getting from idea to final design.

Can be upgraded to produce the highest quality 3D images yet seen on an Amiga. (see prices and notes below, before you rush out to buy it!)

## AGAINST

Caligari Consumer is simply a 3D design package that produces single pictures in 16 or 32 colours. As such, it does not have a great deal of use in this form.

VERY expensive to upgrade to animation and decent image quality.

Old fashioned 'script based' animation editing. (yes, it's back to the keyboard for this bit! This seems more than a little odd after the care and thought that has gone into the designing interface.)

No surface mapping or surface qualities such as metal or glass.

No HAM rendering option, to produce more 'real' looking images.

No control over exact screen resolution for compatibility with other Amiga programs.

## AND FINALLY... SCULPT ANIMATE 4D, VIDEOSCAPE 3D, TURBO SILVER, 3D PROFESSIONAL, REAL 3D...

There are a growing number of 3D design and animation systems on the Amiga. Most are good in some respects and some like SCULPT ANIMATE 4D and REAL 3D are simply stunning. All of them have their own approaches to the problem of interfacing and they each have advantages and disadvantages.

In an ideal world, I would put Caligari's interface onto SCULPT ANIMATE 4D and add the surface mapping and rendering abilities of REAL 3D for a near-perfect 3D animation system.

Back in the real world. If I HAD to choose, then I would use SCULPT ANIMATE 4D for 'solid' 32 colour or hi-res animation and complex in-betweening and metamorphic style animation and REAL 3D for everything else. Mind you, who knows what the full BROADCAST version of Caligari can do?...

Does anyone want to lend me an Amiga 3000, a 24bit card, an industrial VCR, a single frame controller, transport controller software and, of course, Caligari Professional?

The Caligari system comes in several formats as is often the case these days. **Caligari Consumer.**

\$249-00. Object and scene design with 16 or 32 colour rendering. Min 1Mb RAM needed.

**Caligari PRO Design.**

As Consumer but 4 - 8 times faster. Min 3Mb RAM and 68020/30 CPU needed.

**Caligari PRO Animate.**

Video production environment with animation and real time 3D preview. Full control of industrial quality VCR's (via third party equipment). Min 3Mb RAM and 68020/30 CPU needed.

**Caligari Broadcast.**

\$3,495-00. (Not a typing error!) Photorealistic image quality in 24bit/16.7 million colours, (with the relevant 24bit hardware such as the Harlequin Board). Gouraud, Phong, metal and environment shaders with transparency, shadows, texture and reflectance maps. High quality anti-aliasing and a typical rendering speed of between 1 and 5 minutes per frame. (Partly due to the fact that this is NOT a raytracing package. Min 3Mb RAM and 68020/30 CPU needed.)

*B.M.*

**Contact: Octree Software,  
350 Fifth Ave.,  
Suite 7111 N.Y., N.Y. 10118  
Tel: (212) 967 6633**

## Second Opinion

*Peter Lee offers his own view...*

The screen shots and demo disk I've seen for Caligari were nothing short of amazing.

Which makes the entry level 'consumer' version under test the biggest tease I've yet seen.

The user interface is pure genius - the rest appears to be the gutted remains of something which promised so much. Any kind of realism is missing from the finished screens, the animation so eagerly anticipated is available only to the few who have the high-end kit-and-cash-to support it.

The program comes in four increasingly costly configurations, and clearly one has to confine comments to the version under test. It would be grossly unfair to compare Caligari Consumer with 3D-Professional - the latter wiping the floor with Caligari apart from the object and scene design elements - which is the only reason I can see for wanting this version of the program.

Caligari's window into the world of three dimensions is the finest interface of any design package I've ever seen. The fluid feeling of absolute control over wireframe objects is stunning, and the editing modes combine to give a truly innovative and intuitive interface. The number and range of primitives is excellent, and almost any shape can be achieved by means of the fine array of tools for things such as rotation and re-sizing.

Creating your own extrusions or lathed objects is beautifully handled, even better than 3-D pro, the freehand option in particular is remarkable.

But having designed your scene, what then? Who wants faceted spheres? There are no sophisticated smoothing/rendering tech-

niques (missing are Phong and Gouraud, the best known), and material designation for objects is limited to colour, shininess and intensity.

In this form, you are not being offered a window on the real world - it is an angular, artificial environment, full of sharp edges and a maximum of 32 colours - and one which I have difficulty in finding a need for.

To me, the concept of computer aided 3D is a means to an end; despite the fact that Caligari has been rightly praised to the heavens for its design section, the Consumer release does not give the kind of 3D rendering users expect, and in fact need, for professional-looking work.

Even given the fact that this version is many times cheaper than the full spec program, and will run on an Amiga without the luxury of accelerator boards or massive RAM storage, I have to question it's usefulness. The finished output from many other 3D programs blows it away.

So what if the option exists for an upgrade? Although files created within this module are upwardly compatible with more expensive versions (pro-design, pro-animate and broadcast), normal users such as you and me will not be able to afford the luxury of textured surfaces and animation.

**VERDICT** - A sawn off, emasculated version of what promised to be the classiest 3D animation program available for the Amiga. Either get a bank loan for the full spec program or leave well alone.

*P.L.*



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# How To Be An Amiga Artist

*In the last part of his series on graphic techniques, Peter Lee focuses on special video effects which any DeluxePaint III user can achieve . . .*

## Part III

*We concentrate this month on the major attraction of the Amiga - high-speed animation, and how to achieve subtle and professional-looking transitions.*

### VIDEO EFFECTS

A number of techniques are available thanks to the versatility of DPaintIII, and a little experience. I have evolved these processes in order to create special effects for video titling, and they are certainly capable of improvement and enhancement to suit your own needs or capabilities. What they should do is give you the impetus to experiment for yourself.

### DISSOLVES

In this effect, you can either dissolve one art screen into another of the same resolution, or simply make one screen disappear gradually over a set period.

To take the latter effect first: Have your original art screen as the spare (scratch) image, and create about 20 totally blank screens in the animation set-up. Make sure the currently displayed animation frame is the first one, and copy the scratch screen (containing the image) onto it.

Now advance to frame 2 (which will, of course, be blank), and enter the scratch screen. Using the fine airbrush and the background colour, spray a fine dot pattern randomly around the picture, effectively erasing patches of pixels.

Copy this partially-erased screen to animation frame 2, then advance to the blank screen of frame 3.

Continue erasing the master picture on the scratch screen in this way, peppering out more and more of the image before transferring it into the animation sequence.

When you have reached the penultimate animation frame, your original scratch image should only have a smattering of pixels on it. So effectively you have partially erased the entire screen in 30 stages, recording each stage as a frame in the animation. When played back (choose a slow playback rate - 10 or under), you can watch your original screen dissolve into

blackness!

To have one picture dissolve into another, the same method is used, but instead of using blank animation frames, stamp one picture into all 30 frames, and copy the scratch frame you are erasing in front of this image. Do not erase any part of the scratch image for the first frame, and also ensure both images share the same palette.

This effect is good in low resolution, but is more attractive in higher resolutions, due to the decrease in pixel size.

This technique also provides the basis for having simple text lines appear out of nothing - ideal for pseudo-fading in or out video titles.

All you need do is practice to get the spray effect even so that clumps of the image do not suddenly appear.

### SHATTERED IMAGES

Most people have seen images on TV which appear as if they are painted on glass; they shatter and spin away in all directions. We can do this with a little care

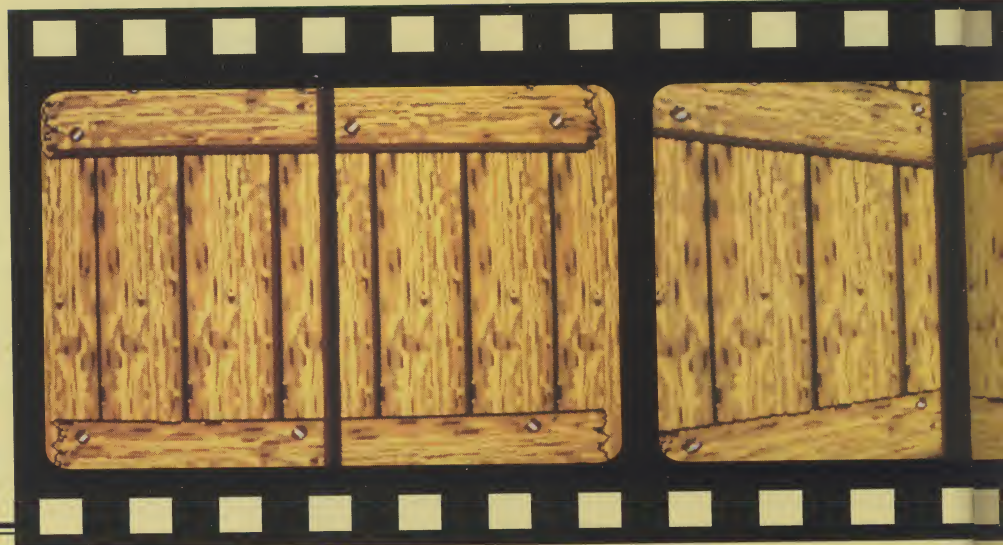
and thought in DPIII.

Create 30 blank anim frames, and have your master image as the scratch screen (as we did in the previous example). But this time we shall be cutting out distinct portions of the image instead of sprays of pixels.

Using the brush cutout tool in polygon mode (i.e. not rectangle), use the right mouse button to cut out, from your image, a jagged shape. When you complete the cut (as the last line joins the first), you should be left with a jagged brush, and a hole of the background colour from which the brush was cut. If there is no hole, you used the left button to complete the cut - try again with the right button!

Now switch to the first screen of the animation sequence, and call down the move option from the animation menu.

What happens next depends on what you need the image to do. I like to have some of my shattered pieces receding into the background, and some coming out of the screen. Use the Z option, in both positive and minus values, to test out an





effect.

To make the jagged brush spin, as if shattered, enter a few values in the X, Y and Z angle boxes, and preview the effect you get. Try not to have the image rotate too many times. The cumulative effect of these values will determine how the image whizzes through space.

Once happy with the preview, draw the animation of the full number of frames.

You now have to repeat this process until the entire scratch image has been removed as jagged brushes. Remember always to start at animation frame one, and be thankful DPIII remembers the exact location from which the brush was cut, ensuring that your first animation screen will look exactly the same as the master screen, even though it is built up of many oddly-shaped brushes.

## MOZAICS

It is a small shift of emphasis from the previous example to create mosaic effects - where regular squares of an image build up, either on a blank screen, or on top of another image.

Instead of using the brush cutout tool to create odd-shaped brushes, use the rectangular brush with gridlock turned on.

Adjust the gridlock depending on the coarseness of the mosaic, and follow the instructions as above, cutting out from the scratch image, and simply pasting back into sequential anim frames.

Like all of these effects, this can be reversed by making your current animation frame the last one, and working backwards to the first frame.

## OPENING DOOR

This effect is quite a favourite; You can either have two halves of a door

o p e n  
inwards to reveal another screen (usually titles), or open up onto a genlocked video presentation.

Using the door analogy, I like to use a set of heavy-looking wooden doors, the type you might find on a church, and have them swing inwards.

This is quite easy to achieve; It is just a matter of cutting out as a brush one half of the door, and over a number of frames have it pivot on the x axis by 90 degrees.

One this is done, you can pick up the resulting sequence as an animbrush, then flip it along the horizontal axis to create a mirror image, and paste it down over the animation sequence so both halves are synchronised.

The easiest way of having a picture or text appear as the door swings ajar is to make a stencil of the door colour, and just keep adding your image frame by frame. This can be either in the form of a brush, or a copy-over from the scratch screen.

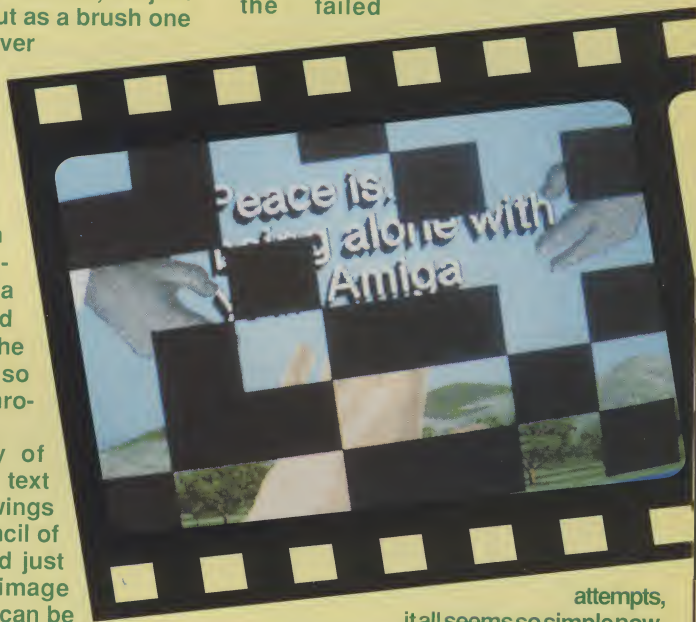
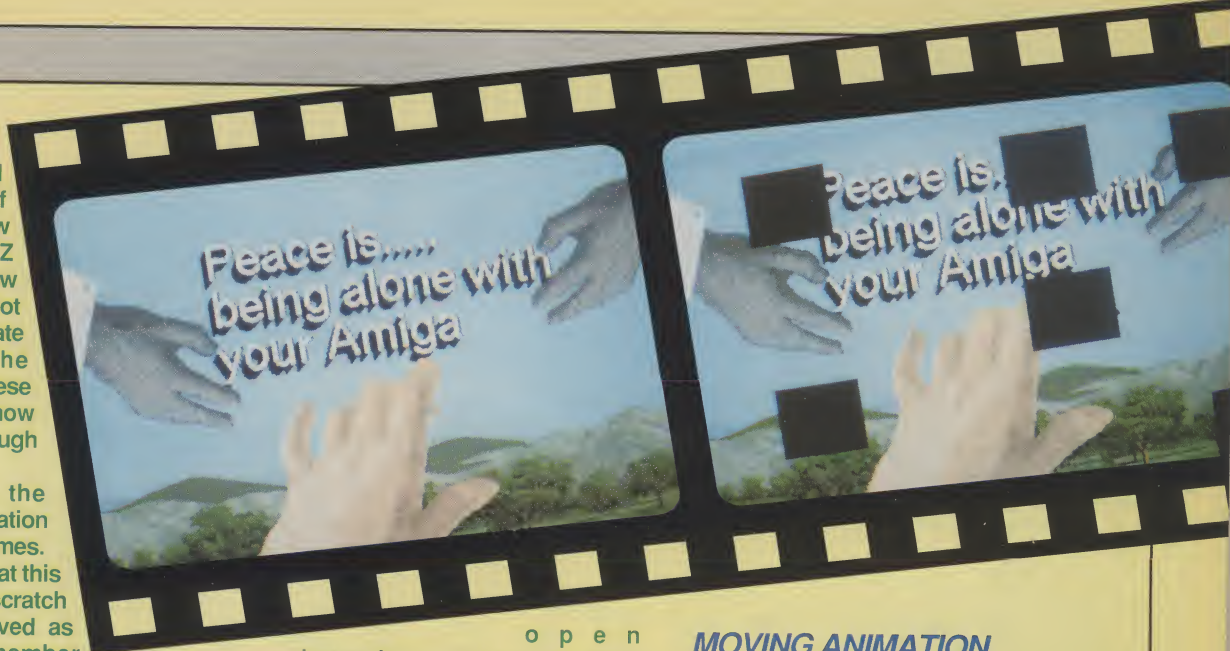
## MOVING ANIMATION

One effect I was determined to master was the use of a vast field of animated objects rolling either to or from the viewer - a form of ever-advancing carpet, filled with animations.

DPIII has all the tools you need to achieve this, and when I think back on the failed

attempts,  
it all seems so simple now.

You will need an animated brush to begin with; I like to use a digitised sequence







of frames of something moving - in my test piece it was me babbling on about something.

You only need four or five frames for a good effect, as longer sequences tend to lose impact at the size they are rendered. Create around 20 blank anim frames.

The next thing you need do is to go into the pull-down perspective menu, and adjust the perspective so that the brush appears to have fallen backwards along the y axis. You do not want the bottom edge of the brush too large in terms of perspective, otherwise there could be some distortion when the brush is draw.

While still in the perspective mode (you should have a wire-frame representation of your tilted brush on screen), you have to set up the animation control panel's brush options, then edit the y value in the top section, to enable the brush to move either up or down screen.

Select preview to see if it goes the way you expect, and once it does, click on the fill option in the control box. The screen will now fill with renderings of the anim brush, in true perspective, each frame of the anim featuring the next in the sequence of the anim brush.

And once you play it back, the anims will move both in terms of perspective, and with individual animation. Very

rewarding!

If you want the anim brush to move from left to right, simply edit the x factor in the control panel, and a similar effect is achieved.

If you now add another anim brush on top of this, which is doing something else - for instance spinning or travelling along - the cumulative effects can be quite astounding.

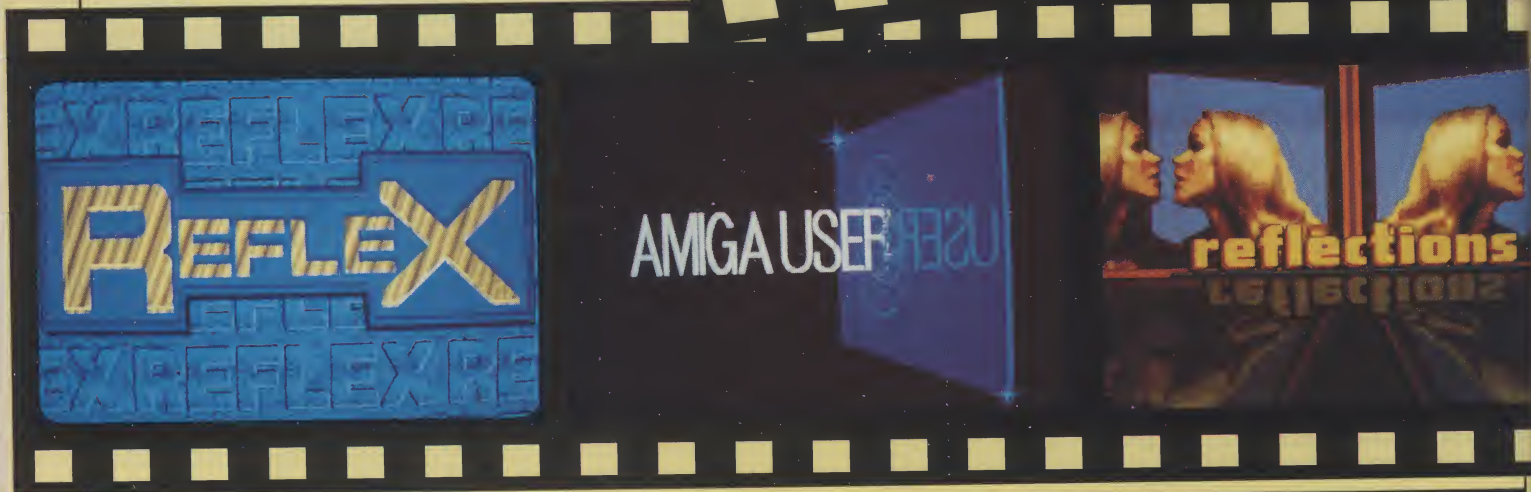
Remember: save your work regularly, because these effects are time-consuming to achieve, and you do not want to have to start again if the computer hangs.

There is no doubt about it, Electronic Arts' Deluxe Paint III is a remarkable program. It can turn you into an Amiga artist.

P.L.



The END





# But Seriously

## HiSoft Devpac 2 Assembler/Debugger

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# Amiga Graphics Starter Kit

*Three graphics programs in one package sounds too good to be true... it's true all right, but not all that good, says Peter Lee...*

The Amiga's growth from an exclusive wonder machine to an affordable home computer has meant a giant leap in the number of users.

Those of us who have been with the Amiga from the start often have mixed feelings about this popular upsurge; on the one hand the machine is now considered by many software houses to be a games toy, but on the other, the more users there are, the more serious software will be written (capital returns, market forces and all that).

Early Amiga owners will by now have become familiar with what Commodore's gem can do; but there are an increasing number of newcomers out there, faced with a bewildering array of software - some of it highly specialised.

And clearly with this in mind, Aegis - one of the earliest supporters of the Amiga - have compiled a sort of 'greatest graphic hits', bundling together three of their star programs in one package.

On the face of it, this seems like a very generous move - until you realise that this is quite old software, and by today's standards, it shows.

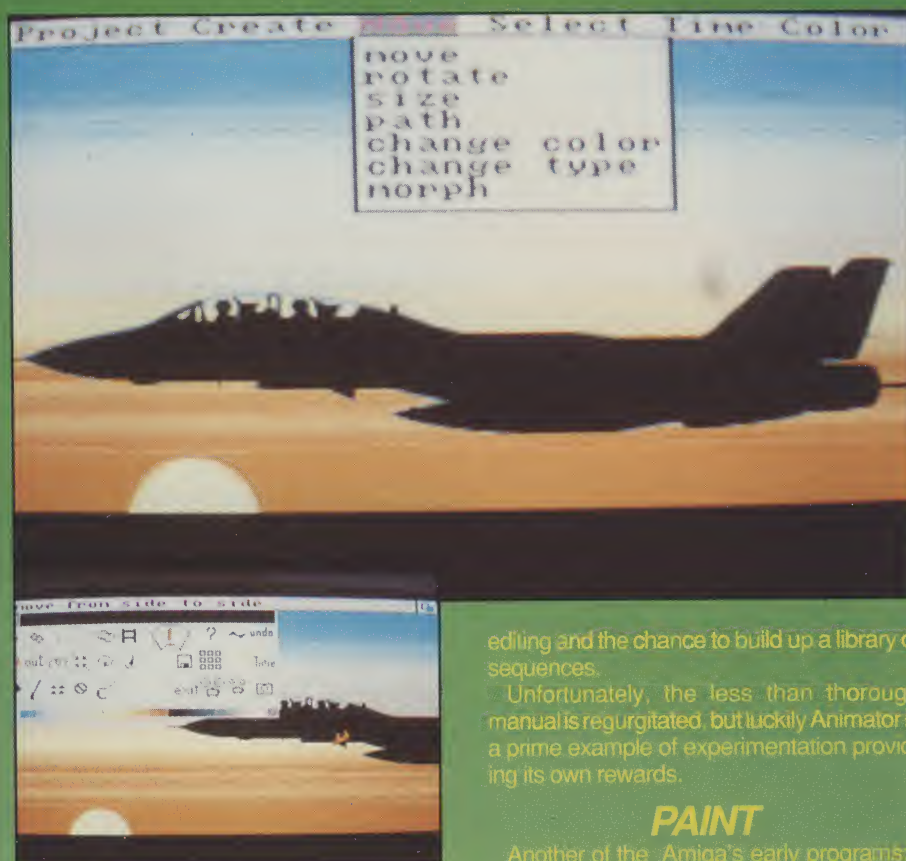
But let's run through each program individually - always remembering that as a trio, they do offer a good starting point for any newcomer interested in graphics, even if they have dimmed individually with time.

## ANIMATOR

Aegis Animator was the very first program I bought for my A1000: good for its time, but it's four years on now, and no enhancements are apparent. It has not even been converted to PAL format for European users, neither will it take account of additional memory, two problems which eventually forced me to reluctantly abandon the program.

Which is a shame, because Animator always was a dream to use, enabling the mixing of bitmap and metamorphic animation to a high degree of professionalism - despite the hindrance of memory constraints.

Various geometric shapes can be drawn on screen, then made to move in space over a sequence of what are called tweens. This may not sound too impressive, but with a minimum of fuss some superb animations



Animator.

can be achieved, with shapes twisting and turning, shrinking and whizzing out of the screen (albeit NTSC format!), with colour changes adding to the power.

This is not a 3D program - the shapes you create are flat, but it is still capable of clever imagery. You can also load in bitmap images, and in the case of animated sequences, provided you load each brush separately, and position it carefully, real animation over your chosen tweens is catered for.

Easier to do is float a brush image onto or out of the screen, and in fact I began my professional work on the Amiga doing animated sequences (which was a long time before DeluxePaint III came along and made life a magnitude simpler).

Scenes in your animation storyboard can be cut and pasted together, allowing fine

editing and the chance to build up a library of sequences.

Unfortunately, the less than thorough manual is regurgitated, but luckily Animator is a prime example of experimentation providing its own rewards.

## PAINT

Another of the Amiga's early programs, I didn't rate it then, and now it looks even more insipid, especially compared with other bitmap drawing packages which have appeared.

Still, if this is all you have to begin with, then it's a modest introduction to the graphics capabilities available to Amiga owners. Again we have a major problem for UK users in that the program supports only NTSC format, and to add to the problem, only the 32-colour low resolution mode is catered for.

On the plus side, the pull-down menus offering brush shapes and shapes are simple in the extreme, and the ability to design and use numerous pattern fills is well implemented and always available via a quick on-screen menu.

There is nothing too special about the so-called Specials options - which feature a few tricks such as smearing the image, colour cycling and mirroring.

Using its own terminology (remember, this





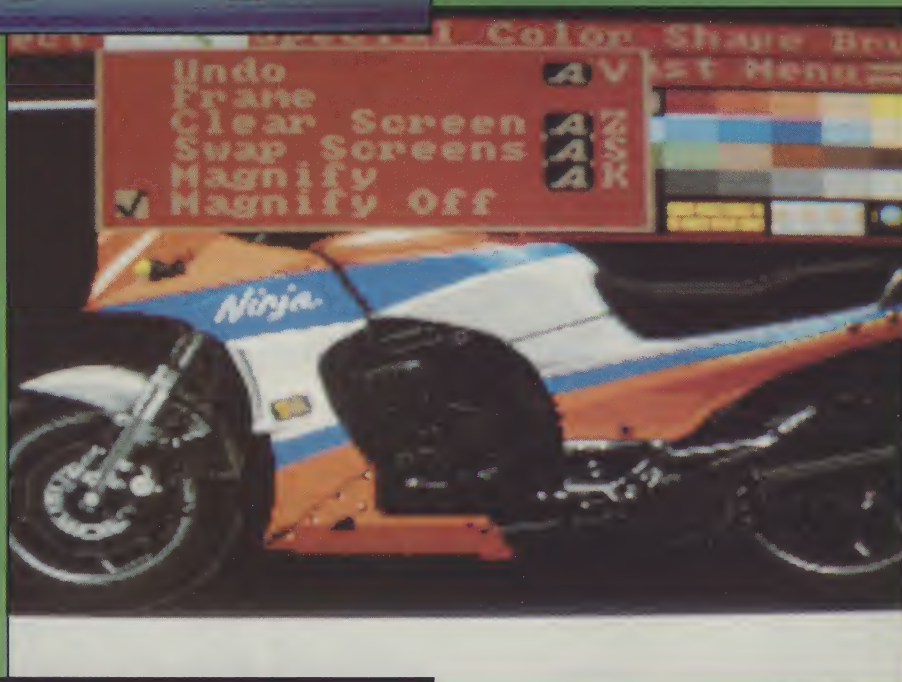
was a long time ago...) the program allows 'frames' to be defined and manipulated. These are what have come to be known as brushes, and as such enable an area to be cut or copied and manipulated (though only in rectangular format).

There is a magnification option for precise pixel work, but it all seems rather rudimentary in hindsight.

The final thing I can offer about the program is that if DPaint or DigiPaint are the cutting edge, Images is blunted by age. It is just plain unlovely.

## DRAW

It should come as no surprise to learn that this CAD structured drawing program works in the NTSC format. It was written in 1985, but nevertheless is a pleasant and genuinely useful tool. And it takes advantage of extra memory too, which is a breakthrough in this compilation!



It allows you to create the kind of accurate blue-print elements beloved of architects and designers; these elements can be scaled and archived to build up a library of shapes - desks, doors, trees and so on.

People unfamiliar with CAD (computer aided design) can be eased in gently by this neat program, as things are straightforward and well implemented.

Multiple screens are allowed for concurrent work, and among drawing tools are lines, circles, arcs, text and freehand; plus you have the ability to move, rotate or resize objects once they have been drawn.

Measurement can be in either English or Metric, and a grid invoked on which to snap lines. Drawings are done on a layer basis, which means that plumbing, wiring or ducting can be added as separate sheets, which can be viewed and edited in isolation, but which can be combined to give the whole layout.

Of the three software items, the most im-

pressively comprehensive - but ironically, it is the one of least use to an Amiga beginner, I would suspect.

## CLIP ART

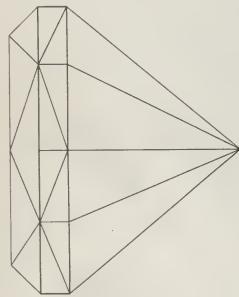
A bonus with the package is the inclusion of a disk full of excellent artwork for use in Paint or Animator. Split into useful categories - buildings, vehicles and so on, the packed disk provides plenty of material in 32-colour low-res. Finally, the Aegis adventure Arazok's Tomb is thrown in with the art programs - why is anybody's guess.

## CONCLUSION

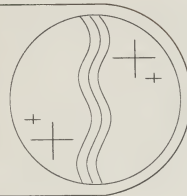
As single items, the three programs are definitely past their sell-by-date. The Amiga programming community has evolved far more impressive software, and long-time Amiga users expect only the best. But newcomers may find the bundle attractive for its variety, and as a starter kit it lives up to its promise.

PL





PHILIPS



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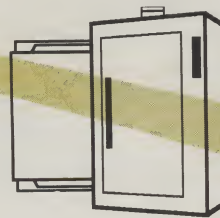
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# OLO FONTS

*Barry McCarthy test drives a new set of fonts from Scandinavia. . .*

**B**eing a computer/video artist is not the same as using your Amiga for pleasure, even if you seem to be doing the same or similar things with it. On your own, you may work for your personal pleasure but in the "real" world you work for someone else's.

One of the major differences is time. When you are paid by the hour and each project has a strict deadline (always kept to, of course!) You can't spend days fiddling around being finicky. You want tools that are quick and easy to use and produce professional results in the shortest possible time.

One thing that is very often used and frequently a real pain to produce, is professional quality lettering or FONTS. To 'hand' draw each letter is just not cost effective. Quite simply the best way to incorporate lettering in 2D work is to use someone else's design. Graphic designers do this all the time, they're trained to! Hence the success of Letraset...

Frankly, I will use anything I can get my hands on, if I think it will save time

or make life easier in some way.

There are hundreds of different fonts on the market today. Some are designed for DTP and others are designed specifically for video work. Of the video fonts available, the best are the 'COLORFONT' variety such as the well known (and used) KARA FONTS. These are usually 8 colour designs in a selection of very ornate and impressive fonts. You get the likes of gold, marble, brick, wood,...

OLO FONTS from Sweden are a new entry into this market. They seem very similar in format to KARA but different in design. You find though, after some investigation, that there is a little more to them than simply another 'style'.

There are a selection of OLO font sets available;

*Olo Animated Fonts 1, Marmor*

*Olo Animated Fonts 2, Glider*

*Olo Animated Fonts 3, Gold*

*Olo Fonts Collection 1, Keyboard*

*Olo Backs 1*

*Olo Backs 2*

All the animated fonts come in hi-es,

8 colour. There are only capitals and you are provided with both animbrush (Deluxe Paint III) and keyboard (Any Program) formats.

## **ANIMATED FONTS?!**

This is just what I thought. How do you animate a font? What do they do?!

Here is a short description of each of the Olo animated fonts and what they actually do, when you use them in Deluxe Paint III;

**Marmor.** A marble-looking, massive font. Each letter grows from an amorphous lump of dull stone. It's then illuminated, letting the marble pattern appear. The letters take 49 frames to do this.

**Glider.** A metal-looking, flowing, shiny font. Each letter is exploded into position. The next sequence shows a beam of light travelling through the brim of each letter from left to right, including the odd sparkle at random intervals. 42 frames per letter.







**Gold.** A gold-looking, clear and 'exclusive' font. Each letter is blurred with a crude mosaic pattern (Pixelisation). This pattern is rotated into position from the distance. The next sequence shows the crude pattern becoming increasingly refined and the crisp definition of the letter appears. 40 frames per letter.

#### WHAT DO THEY LOOK LIKE?

Working with just the keyboard fonts, the different styles are very pretty without being anything drastically new. Glider is probably the most impressive and Marmor the least.

The animated fonts are harder to judge. Each of them is 'neat' when first seen. They really do look very slick, professional and individual.

What I'm not sure about is their longevity. Once you've used each one a couple of times then it seems unlikely that they will be used again.

Straight fonts are no problem here because you can do what you like with them and produce your own animated fonts. Of course this takes more time,

so if you haven't the time but you do have the money, then ready animated fonts are ideal for instantly professional results.

All of the Olo series of products provide an excellent way of increasing their useful life. Both the keyboard and animated fonts and the Olo Backs (more



about these later), come complete with a large selection of different palettes.

What you do is this. Load your font, for example, GOLD. Type the text you require. Now load in one of the different palettes as a brush. Go to CHANGE COLOR and USE BRUSH PALETTE and, hey presto, your gold text is now



in Copper for instance. This is a very nice and thoughtful addition to these fonts and it does help with the problem of repetition.

#### OLO BACKS

So what are these Backs then? Quite simply they are repeating tiled backgrounds in overscanned hi-res and 8 colours. All of them are very well-designed and either in relief (like a 3D tiled floor) or a mixture of relief and 3D (where the 3D tiled floor has been tilted in perspective and goes to infinity). There are also some tubular designs that go through various distortions such as melting or breaking.

I like Olo Backs and they really jazz up a simple title screen or animated title. Once again the designs are very professional and the extra palettes are provided for as much variety as possible.

#### DOCUMENTATION

The documentation was an early draft (ie photocopies), so it is difficult to judge the final quality. What I will say, is that they are very extensive and give some excellent hints on using Deluxe Paint III for fonts and especially with regard to animation.

#### CONCLUSION

It is clear that these products are aimed at the semi to professional user. They all work very well and look excellent. You do need to bear in mind that you will be working in overscanned hi-res and 16 colours.

This means that even with an Amiga 3000, everything takes a lot longer to do, ESPECIALLY animation. Also the backs and fonts are slow to load from floppy, so I would suggest installing them on a hard drive.

Finally, I would say that they are great for the semi to professional user who needs a professional finish without spending a lot of time or effort and large amounts of money. £29.95 is not a lot to pay if the results are used in 4 or 5 productions.

#### REQUIREMENTS

AMIGA with 1meg of CHIP RAM and at the very LEAST 1meg of overall RAM or about 4megs for animation.

Deluxe Paint III.

A hard drive, a multi-sync monitor and an Amiga 3000 or an accelerator card would really help.

#### PRICES

All of the Olo products are priced at £29.95 and come on two disks each set.

B.M.

Contact: Art0Vinjett, Byalvs V.65, S-121 74 JHOV, SWEDEN.  
Tel: +47-86497702



# Real Things; Birds

## RGB Studios

*Birds winging realistically across the screen of your Amiga....a flight of fantasy or reality?*  
**Peter Lee** test flies an imaginative new package

**F**light has always been one of mankind's fascinations - from Da Vinci's plans for a helicopter right up to today's supersonic stealth fighters. And how we envy the birds - for effortlessly



they soar and bank, stall and land.

Birdlife is among the most colourful and splendid species in the world, and to all but the gifted genius, it has been almost impossible to reproduce the variety and grace of their movements on a computer screen...until now, that is.

Thanks to the continuing development at RGB Studios in Sussex, this difficult subject has been tamed and added to the company's Real Things stable, which was launched in the Autumn of '89 with the acclaimed Horses package.

Using the same formula of animated clip-art, tutorials and the incentive of using your own skill and imagination, RGB have hit on another glorious time-saver and a real spark to the Amiga's creativity.

Once again the animated images are primarily for use within Deluxe Paint III, but increasingly desktop presentation programs - such as Deluxe Video - utilise anim brushes; as most people with an interest in Amiga Art already own DP III, the definitive graphics package, a large user-base already exists. And anyone who has seen or used RealThings Horses will be hungry for more of the same.

Birds, however, has the advantage of encompassing a wide variety of different species; the sheer range and variety of the topic has opened up a new depth to the animations, which I felt Horses lacked.

Artist Peter Partington has done a fine job in capturing the movement of many kinds of birds - from the iridescent kingfisher to the massive majesty of the eagle; some examples are better than others, but with two disks in the package packed with anim brushes and backgrounds, there must be something for everyone.

The same comprehensive filing structure has been employed with this release as with Horses; sample movements of different birds are contained in specific directories, and as well as offering a range of animations for each species, also help the user understand more about what is actually happening when a bird moves.

Although artistically the images stand on their own, the product range is also



meant to be a valuable educational tool, and RGB studios have managed the difficult job of making learning both interesting and creative. And in any event, any real artist needs to know what happens under the surface of things - flexing muscles and bone structure - not simply the outward view.

And there is a superb line animation on the disks which graphically shows exactly how a bird moves.

Water birds are well represented on the disks - gull, heron, mallard and swan, but you can also take to the skies with a barn owl, eagle or kestrel. There are some regular IFF images stored on disk too, to help with backgrounds, though half the fun is having your anim-bird soar over a landscape of your own creation.

Birds can evoke many moods, and as such can be used in many ways inside

your own animations. Earlier I made a Christmas disk with snow falling and a white bird flying diagonally up the screen; the precision and grace of the wing-flaps turned a simple scene into a knockout. And when I added music in the form of a Carol, even my wife thought there may be something to be said for computing after all.

Finally, the trick is not to allow other people's work or ideas to be a boundary; use the bird anims to further your ideas, not constrain them; I had some great fun clipping moving wings of an anim bird and pasting them onto a charger from the Horses anims - and hey presto, Pegasus. Get the idea?

### CONCLUSION

I like the way RGB Studios light the blue touchpaper of your imagination. And with Birds there is plenty of variety and scope to provide lasting use and lots of potential. There is a lively choice of birds and movement, and comprehensive documentation is provided. Highly recommended for Amiga animators and DPaint III lovers.

**P.L.**



*\*Next issue we hope to bring you a review of Real Things Humans - walk tall with the latest animations from RGB Studios.*

**Price:** £29.95

**Contact:** RGB Studios, Gables, Buxted, E.Sussex. TN22 4PP

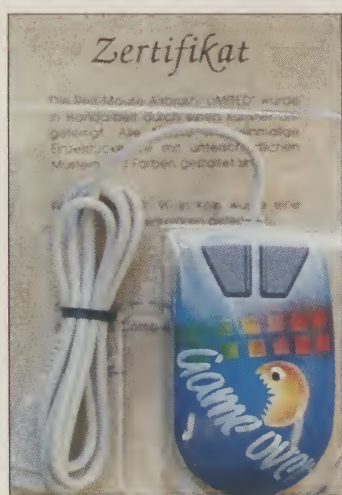
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1. What is the expanded meaning of IFF?:
  - a) Internal Fast File .....
  - b) Interchangeable File Format .....
  - c) Indirect Frame Fade .....
2. Real Things is a collection of 3 separate animated clip art packages on which of the following subjects?:
  - a) Horses, birds and humans .....
  - b) Earth, wind and fire .....
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3. **AUI** has two regular graphics contributors. Name one of them?  
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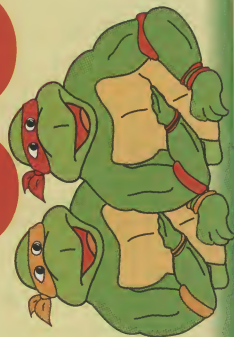
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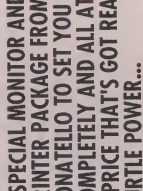
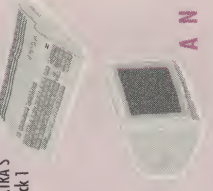
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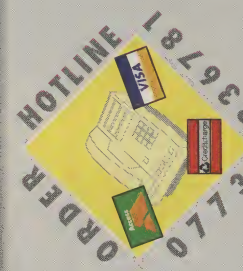
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# Prince of Persia

## Broderbund

**S**o what do you think? Prince of Persia obviously isn't much cop with its drab graphics and old platform gameplay, you're probably thinking. Well think again, because this isn't just any old game; it's a Broderbund game. Remember Broderbund's previous classics, like Choplifter, Lode Runner, Typhoon Thompson and more recently Wings of Fury? They looked pretty naff in still shots, but turned out to be exactly the opposite. Prince of Persia is no exception.

It's set in a kind of Arabian Knights scenario, with you taking the part of the Prince of Persia. Word reaches you of The Grand Vizier's latest act of evil. The sexual deviant has captured a beautiful princess, and in an hour's time will have his wicked way with her (that's deviancy? Ed.). As you've secretly been wanting to have your wicked way with her for a while now (so you are a sexual diviant, too? Ed.), you seize the opportunity to win her over, and set out on an attempt to free her from the vile Vizier's clutches.



The cowardly ruler has previously been protected from attacks by the nine levels of mazes, halls and corridors within which he lives, each of which is full of savage traps and armed guards. A keen gymnast and athlete, you enter his lair brimming with enthusiasm.

Unfortunately this is soon quashed as you fail to notice a loose floor tile and find yourself flying down a fifty-foot shaft, to be greeted at the bottom by a cluster



**"Holding down the fire button allows you to grab the ledge if you're close enough"**

of razor sharp spikes. Don't worry, you're given as many lives as you like, but it's all played to a strict time limit, and any deaths put you back to the start of the current level.

You begin the game unarmed. If you're to have any chance of



getting past the countless guards, you'll have to find a weapon. There's a sword at the far end of the level, and although there's no-one standing in your way, just getting through the crumbling corridors is still a tricky task. Precise movements are called for as you make

**"What makes the game is the main sprite. He may be small, but he's animated like no sprite you've ever seen before, and that's no exaggeration!"**

your way through the flip-screens. Some of the chasms are easily hurdled. Others call for a good run up, and even then you may not make it to the other side. If you find yourself just short of reaching the opposite platform, you may still be able to save your skin. Holding down the fire button allows you to grab



the ledge if you're close enough. Hanging by your fingertips, you can then scramble up the wall and onto the safety of the ledge.

Once you've found the sword and thrust it dramatically into its sheath, you can retrace your steps and do battle with the level exit's guard. Level two continues the adventure in the dungeons. The spikes

**"Time after time you'll find yourself lost for words as something completely unexpected crops up"**

become more numerous, the guards get a bit more intelligent, and you're gradually forced to put some thought into your actions. The adventure side of the game has been well done. Problems are mostly to do with opening gates with the pressure pads in the floor, getting across pits and around traps. There are times when moving past a certain stage seems impossible,



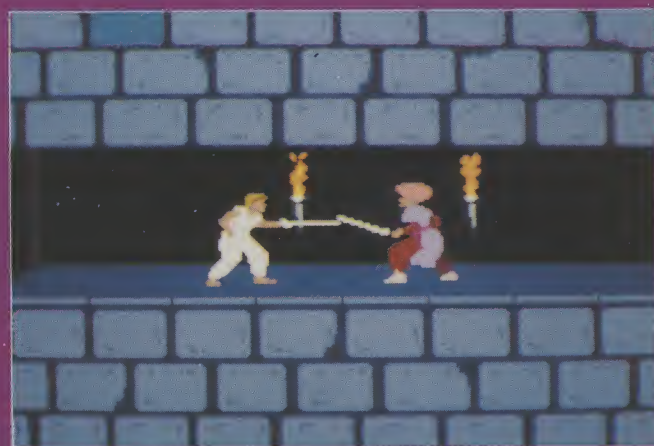
but there's a logical solution to everything.

On its own, all this still might seem rather unremarkable. What makes the game is the main sprite. He may be small, but he's animated like no sprite you've ever seen before, and that's no exaggeration! Cheer as he leaps over gaping chasms; gasp as he hangs on the brink of death; applaud as he delivers the final blow to an obese guard; wince as he's sliced in half by a pair of steel jaws. However you manage to kill yourself, you're treated to all the graphic details, along with appropriate sound effects.

Just when you think it's getting predictable, the game throws a spanner in the works. Time after time you'll find yourself lost for words as something completely unexpected crops up. I'd love to tell you about everything, but that would spoil it. You'll just have to take my word for it, I'm afraid. This is no ordinary platform game.

Prince of Persia is a masterpiece of game design. Although it runs a little slow at times, this doesn't detract from the gameplay as long as you're ready to alter your timing slightly. Be prepared for some very long gaming sessions. This is arcade adventuring at its best, and shouldn't be missed on any account.

**T.H.**



**Graphics: 91%   Sound: 75%   Playability: 93%**

**Absolute Value: 92%   Price £24.99**



# Super Off Road

## Virgin

**C**onsidering its success in the arcades, Super Sprint spawned very few look-a-likes. Super Off Road is one of those rare ones, swapping the sleek aerodynamics and tarmac circuits of Formula One racing, for pick-up trucks and overgrown BMX tracks.

As with the coin-op, up to three people can race simultaneously, the third player having to suffer the rigours of keyboard controls. Each track is contained in a single screen, and races are contested by four drivers over as many laps. Anyone beaten by a computer-controlled driver is out of the game, but can rejoin the championship by using one of two continue-play credits given to each player at the start.

As is usually the case, the computer trucks have better acceleration than your own vehicle, but your top-speed is superior in the opening stages at least. So, you get the edge on a straight run, but once you're behind, catching the leader usually calls for a few stabs on the nitro button. These nitros are pretty handy, giving the truck a hefty kick up the backside, but only last for a couple of seconds. Each player is given a stock of them at the start of the game, and there's a chance to top up your supplies between each race.

**"Some very clever collision-detection routines, along with 416 sprite frames, have ensured that it all looks and feels convincingly solid"**

Money picked up from cash-bags during the races, along with prize money awarded after the race can be spent in the shop. Improvements can be made to your



acceleration, braking, top speed and traction. You can also cash-in your continue-play credits in order to soup-up your truck.

Rather than move onto a new track with every race, the game squeezes extra mileage from each, with previous tracks making a reappearance, this time with the drivers taking the clockwise route. All the tracks are full of ditches and small ramps, along with water jumps, banks, cross-overs and the like. Surprisingly, the trucks react very realistically to the rough terrain. Some very clever collision-detection routines, along with 416 sprite frames, have ensured that it all looks and feels convincingly solid.

Although most of the tracks are roomy enough, some tend to put across a frustratingly cramped feeling. The re-cycling of the tracks is unnecessary, and rather than improving its long-term appeal, simply shortens the initial addiction. A game like this doesn't need the usual incentives of new levels, as Super Sprint proved in allowing the player to choose the track himself, whilst remaining one of the most long-lasting race games of all time.

Congrats must go to Graftgold for producing an extremely accurate replica of the coin-op. Super Off Road was never smash hit in my book, but fans of the original won't be disappointed.

T.H.



**Graphics: 88%   Sound: 50%   Playability: 79%**  
**Absolute Value: 78%   Price £24.95**



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# Harpoon

(1 Meg only)

Pss/Mirrorsoft

**H**unt for Red October, Patriot Games, Red Storm Rising, Cardinal of the Kremlin, and lately Clear and Present Danger are books which have made Tom Clancy one of the most popular authors of our time. Clancy was praised for his deep research which led to the books, especially HFRR, being realistic enough as to be the most authoritative guides to modern naval warfare and American military strategy. To whom does Clancy offer credit for the source of this research? None other than Larry Bond and his board game, Harpoon! Harpoon has now made its entry into the computer scene via Three-Sixty, an American software company.

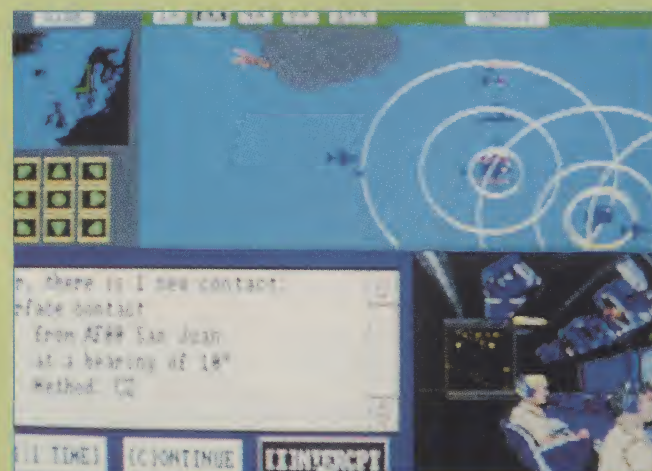
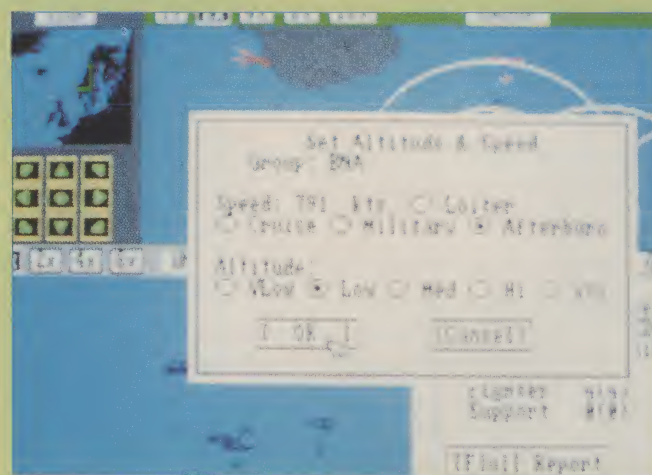
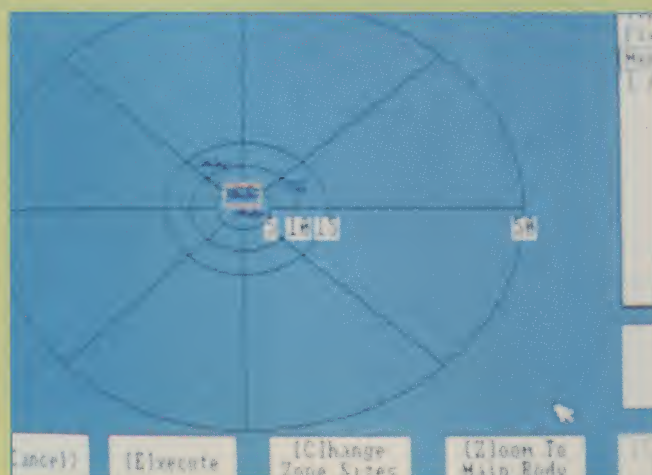
Although published in the UK by PSS/Mirrorsoft it hasn't lost its American gameplay feel, probably owing more to its 200 pixel high display than to anything else. That said, many American games tend to put more effort into strategy and "feel" than to graphics and ease of getting into the game. Harpoon is no exception.

**"The player takes the role of Fleet Commander, making the same type of decisions, using the same type and quality of information that any commander may hope to receive in wartime."**

The introduction takes some heavy reading before a level of competence is reached just to start the simulation. The ease of the program's interface then takes over as you are guided through the tutorial scenario. The tutorial explains the basic control functions that are used throughout the game, while the current situation is developing - "live" on-screen.

The battleset, included with the program is GIUK; Greenland, Iceland, and the UK, comprises 12 missions based in the North Atlantic. Each mission can be played from the side of NATO or the USSR giving a total of 24 possible scenarios. New battlesets are to be supplied on data disks at a later date enhancing the product further.

Harpoon is billed as more than just a wargame. It is a naval warfare simulation which allows players to enter into realistic scenarios. The player takes the role of Fleet Commander, making the same type of decisions, using the same type and quality of informa-



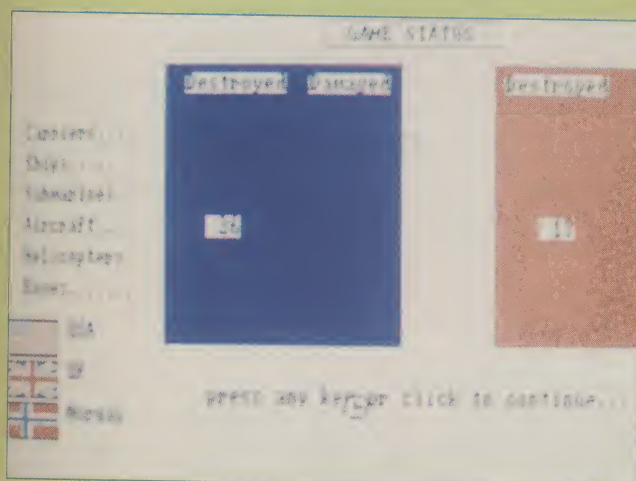
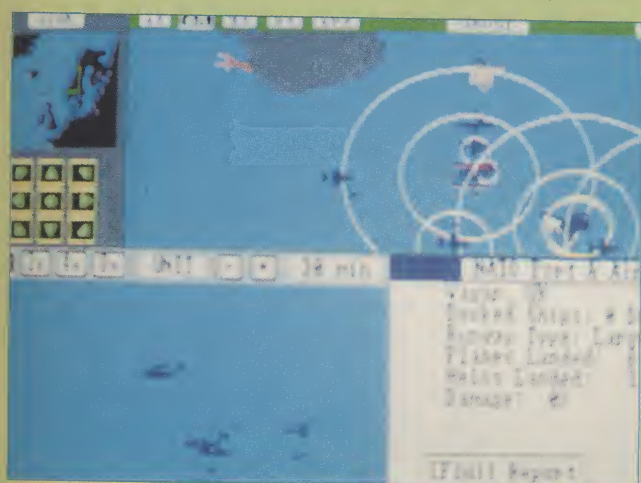


tion that any commander may hope to receive in wartime. Luckily for some, the simulation is designed to allow for varying degrees of difficulty and realism by customising various settings.

**"This reference is of imperative quality and many wargamers may purchase Harpoon for it alone."**

The screen display is split into three main sections; the pull-down menus through which all controls can be accessed, the maps and control bars which graphically display the current situation, and the reports window which supplies the player with all text information.

The commands from the pull-down menus can also be accessed from "hot-keys", which provide a much faster response.



Most of the game is played from the orders menu and it is from here that commands such as attack, set group speed, set formation, and launch aircraft are executed.

During each mission orders are given, the main goals and background information give hints to how the situation should be dealt. The details in the manual act as a reference guide, and along with the Tactical Guide and other supplied information gives the player all the instruction which is needed on naval

strategies. The current naval strategy is of stealth and the aim in most of the scenarios is to locate and kill the enemy. It is easy to hit the enemy, but it's hard to detect them without them detecting you. By launching helos (helicopters) into the vast blue yonder they can be located without giving away "friendly" positions.

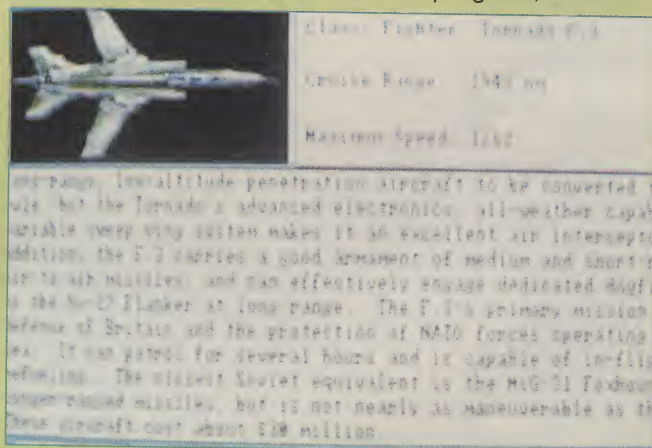
When the missions get fully underway, the screen update seems to slow down to an annoying rate, making it difficult and frustrating to carry out orders. The game is played in real-time, but it can be speeded up during non-interactive periods to various ratios. If in quick-mode, a requester will return the game to real-time once a situation has occurred.

The game's slow screen update is not its only fault. In various instances orders to land a flight were ignored causing the aeroplanes to run out of fuel and crash.

Included in the game is a detailed reference guide to NATO and Soviet ships, submarines, and aircraft

**"Harpoon is one of the new breed of games which offer more than a few hours of fun, it's an experience."**

currently in service, and more importantly, used in Harpoon. These reference guides provide detailed information on the vessels; weapons, sensors, speed etc. This guide is accessed via the program, as in a



database, and probably accounts for a huge chunk of the memory required. This reference is of imperative quality and many wargamers may purchase Harpoon for it alone.

Harpoon is one of the new breed of games which offer more than a few hours of fun, it's an experience. I'm sure that Navy commanders and ardent wargamers will take a lot from the game and it may even make its way into conventional Naval training. It is a well put together simulation which, once again, allows people to live their dreams without having to leave the safety and comfort of their conventional lifestyle.

P.K.

**Graphics: 70% Sound: 63% Playability: 90%**  
**Absolute Value: 94% Price £29.99**



# Line of Fire

**US Gold**

**R**emember the old Shark arcade game, the one with a mock harpoon-gun bolted onto the front of the cabinet? Remember how Taito made a packet by revamping the idea with Operation Wolf, and followed it up with the 3D Operation Thunderbolt? Even with its dodgy 3D graphics, Thunderbolt was a big hit, so Sega must have thought they had it made when they released their graphically superior, silky smooth 3D shoot 'em up Line of Fire.

**"A few dozen direct hits from a tank never hurt anyone, did they? Not in computer land at least..."**

You and an optional partner, play the roles of a couple of bloodthirsty soldiers on a mission to capture a new gun being developed by the enemy. Sneaking into the enemy base was no problem, but getting out is another matter. The alarm is raised as you attempt to sneak back out. This gun is obviously considered an extremely valuable bit of hardware, as the enemy has rolled out a seemingly impenetrable barrier of tanks, planes and soldiers to avoid losing it. So what, a few dozen direct hits from a tank never hurt anyone, did they? Not in computer land at least...

Your exit to safety takes you through eight levels, during which your transport includes a jeep, a boat and a plane. The piloting of the various vehicles is handled by the computer, leaving you free to cause as much destruction as possible with your machine gun. Most soldiers are gonners after sustaining a single shot, unlike you of course, who can stand a fair old pounding before throwing in the towel. Each level has its own "Boss"; sometimes a pair of armoured giants stand in your way, while another time you'll be con-



fronted with a well-tooled chopper. Player one gets the advantage of the more precise mouse controls. Your partner uses the joystick.

Although it's not astoundingly fast, technical standards are high. A great job has been done in recreating the graphics of the original. You get a PAL screen, with big sprites making up both the backgrounds and the foreground action, giving it a slick arcade look. The intermission screens have been included, rounding off a well-presented conversion.

**"It's the kind of game that works well in an arcade, but can't hold the player's interest for long enough to succeed on the small screen"**

The trouble is, it's still only Operation Wolf. These "point and click" shoot 'em ups have never had much lasting appeal. No matter how much variety you put into the graphics, the gameplay remains unchanged throughout every level, devoid of even any slight deviations or enhancements. It's the kind of game that works well in an arcade, but can't hold the player's interest for long enough to succeed on the small screen. Despite the common belief, shoot 'em ups don't have to be as disposable as this.

*T.H.*



**Graphics: 80%   Sound: 71%   Playability: 59%**  
**Absolute Value: 58%   Price £24.95**



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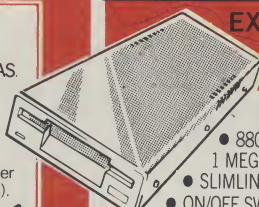
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# Speedball 2

## Image Works

**T**hey know what they're doing, and they're doing it well. From unspectacular beginnings, programming computer versions of Scrabble and tinkering with the Sinclair QL, The Bitmap Brothers have come a long way. Development teams don't come much better than The Bros, for whom Speedball 2 is just another in a string of immaculately produced games.

That a good enough build-up for you, lads? Make sure you send the cash to the new address at the front of the magazine.

A newcomer to the future sport of Speedball could be forgiven for assuming it's some kind of variation on American Football. Fortunately for those of us who find computer gridiron rather tedious, the game is actually played more along the lines of soccer. However, there are two big differences between our

**"Development teams don't come much better than The Bros, for whom Speedball 2 is just another in a string of immaculately produced games"**

beloved game of footie and Speedball. One is that any player can pick up the ball and run with it; feet aren't used to control the ball at all. The second difference would suit Arsenal down to the ground. Under Speedball rules, instead of having points deducted for on-pitch outbursts, they'd be awarded bonus points and catapulted to the top of the league.



Whether the rules could get you (or Tony Adams) off a drink-driving charge is another matter...

So what you get is a mutation of indoor five-a-side football, in which the concept of a foul is non-existent, and hands are used instead of feet. You might expect

**"What you get is a mutation of indoor five-a-side football, in which the concept of a foul is non-existent, and hands are used instead of feet"**

a lot of backchat from the players to the ref in such a brutal game, but there's no chance of that, as there's no ref.

All this is so far pretty much the same as the original Speedball. Speedball 2, however, goes a lot further



than that. The biggest improvement concerns the size of the pitch. Although you only get an NTSC screen rather than the PAL display of the original game, the scrolling pitch itself is far bigger. Now it scrolls horizontally too, and allows bigger player sprites along with more opportunity for varied gameplay tactics. Not only is the pitch bigger, but its walls are now encrusted with all kinds of pinball-style bonus mechanisms.

Along the top left and bottom right sides of the pitch, are two strips of stars, one for each team. Throwing the ball at one of your stars lights it up, awarding you



two points. Light all five and you get a bonus of ten points. Throw the ball at your opponent's lit stars to put them out, knocking two from his score. An electrified bulb can be found on either side of the pitch, and can be used to charge the steel ball, which then stuns any opponents it hits. Rolling the ball up the score multiplier will increase your scoring potential by up to 100%. You also get a couple more of the warp-chutes found in the original game.

Control of the players is much the same as before. Experienced Speedballers will immediately warm to the familiar "feel" which has been retained, despite the game having been completely re-written. Pressing the button whilst running towards an opponent, makes your player slide in feet-first, in an attempt to get hold of the ball. A ball flying overhead can be plucked from



the air with another stab of the button. When it comes to throwing the ball, you have two options. Either you throw it at waist height, most useful for shots, or launch it skyward to reach a player some distance away. The keepers are no longer confined to their goal lines, and can roam around a far bigger area, with all the movements of the rest of the team, along with the ability to dive for the ball.

You might expect to be able to pick your team and skill level for the games, but instead you're forced to control an average second division team called Brutal Deluxe. Instead of limiting the game, this draws you

**"You're forced to control an average second division team called Brutal Deluxe"**

into it. The manual comes with a list of all the teams, along with brief descriptions of their abilities and playing styles. Whether you're playing in a league competition, or in the cup, before long you become quite attached to Brutal Deluxe.

Through the stylish pre-game screens, you can take control of the managerial side of things. With the advanced gym section, you can train players in specific areas. Usually these managerial sub-sections make no real difference to the game, but with a bit of



work, you can build up a pretty strong team. One of two superb stills follows each game, depending on whether you won or lost. On-going league competitions can be saved to disk, although you can only do this once in every four games, a detail that seems to have been omitted from the otherwise excellent manual.

**"Apart from its highly addictive gameplay, Speedball 2 is one of the most interesting games I've seen in ages"**

Artist Dan Malone has really done the business with the graphics. The front-end presentation, game over screens and the like are stunning. It's not often that an artist of this standard manages to master the medium of computer graphics. When it comes to the games themselves, there's no downturn in the quality of the visuals. Now you get far more explicit views of the players beating each other up, with some great touches like the 3D effect as a player leaps up, enlarged palm at the ready, to grab the ball from the air. Kick Off 2's goal celebrations are rivalled here as the scorers drop to their knees, fists aloft, wearing a cheesy grin to rival that of George Formby.

The standard of original game design seems to be on the up. Almost everyone seems to think they can design a game, but in reality, design talents are a rare commodity. Apart from its highly addictive gameplay, Speedball 2 is one of the most interesting games I've seen in ages. Dan Malone's comic book background seems to have inspired a far more involving game than a simple sport simulation, with the "Souvenir Programme" included in the package taking the idea further still.

Whatever the reasons behind its appeal, Speedball 2 has plenty of it, and must be the first essential buy of this excitingly palindromic year.

**T.H.**

**Graphics: 95% Sound: 92% Playability: 91%**  
**Absolute Value: 91% Price £24.95**



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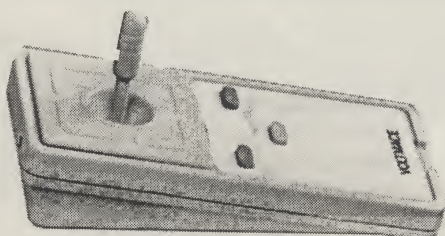
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# WIN! WIN! WIN!

10 packs of the 3 Virgin games reviewed in this issue.  
Golden Axe, Monty Python, and Ivan Ironman's  
Super Off Road Racer

**W**ho would have thought that Richard Branson, quiet brother of Noel Edmonds who changed his name after realising that being referred to as "Noelly's brother" wasn't good for business, would end up with his very own computer software label, not to mention those little sidelines like the Megastores, record labels, international airlines and the rest.

This month sees a small explosion of releases from the man who named himself after his favourite pickle (shame he can't spell it properly though). The ever so silly Monty Python team have been pixelized, juggled about and lovingly shaped into their own computer game. Sega's popular coin-op Golden Axe has been put through the conversion machine, along Super Off Road, both emerging virtually identical to the originals. See the reviews in this issue if you're unconvinced.

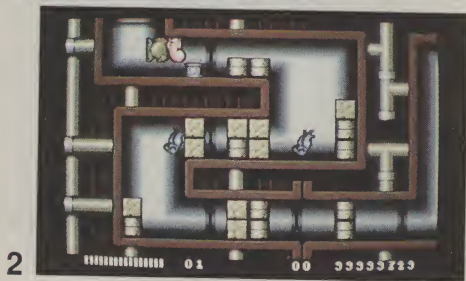
Generous and giving as always, Mr Branson has kindly given us no less than ten copies of Golden Axe, Monty Python and Super Off Road. Ten lucky winners will be the recipients of a complete trio.

So you want to know how you can get your hands on a pack of all three games? See those questions? Jot down the answers on a postcard or a sealed envelope, and put them in the post to us at

1. Who is the villain in Golden Axe?
2. Name any two members of the Monty Python team.
3. Who programmed the Amiga conversion of Super Off Road?
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1



2



3

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# Monty Python's Flying Circus

## Virgin

**S**imply reciting the words "fish", "spam", "cheese" and various phrases from the parrot sketch isn't particularly amusing. Even so, that hasn't stopped Python fans attempting to imitate the bizarre comedy team ever since the screening of the first series. So is this just another vain struggle to equal a John Cleese silly walk, or has someone at last unlocked the secret of Python humour?

Python's format of short sketches and irrelevant cartoon interludes can't have been an easy base around which to design a computer game. In fact Terry Gilliam's surreal animations have been used as the core of the game. Most of the game takes place in and around the barren landscapes in which little old ladies were eaten by cannibal prams, freaks and monsters ran riot, and the famous foot squashed anything that got too silly.

**"Instead of space-ships and aliens, you get fish, feet, dead parrots and so on"**

The scenario for the game is a little more predictable than your average Python sketch. Mr Gumby, a wellie-booted wearer of knotted hankies, has lost his brain. It's split into four parts, each of



which has gone its own way. Your job is to re-unite Gumby with his missing grey matter.

A fairly standard shoot 'em up gameplan is used. Instead of spaceships and aliens, you get fish, feet, dead parrots and so on. Through the game, Gumby is pulled apart and rebuilt in a form to suit the current level, changing from a man to fish, before having his



head stuck on the torso of a turkey. Prominent characters from the series make an appearance as level guardians, while tins of spam and lumps of cheese take the roles of bonus pick-ups.

Now and then you'll be interrupted for a brief lesson in tree recognition, or be transported to the office of the Minister for Pointless Arguments. In the reconstruction of the argument sketch, you get bonus points from contradicting the minister with either a sampled "Yes it is!" or "No it isn't!".

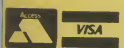
The gameplay itself isn't too hot for a couple of reasons. One is that the gameplay area feels too cramped, and the other is the weedy shoot 'em up action. Your ammo peters out almost as soon as you've shot it, leading to that familiar pea-shooter effect. Maybe this wouldn't matter too much if the humour was any good. I've yet to come across a funny computer game, and Python does nothing to alter that. Almost the entire manual is given over to "wacky" humour that is just plain unfunny. Similarly, the presence of dead parrot sprites and tins of spam is hardly side-splitting. Even the few features that are amusing, are only fun for a couple of games.

If it's cheap laughs you want, have a browse through the PD demo ads. Novelties are all very well, but if you're looking for a decent game that will keep you coming back, look elsewhere.

T.H.

Graphics: 71% Sound: 60% Playability: 60%  
**Absolute Value: 59%** Price £24.95





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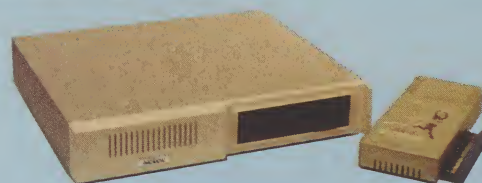
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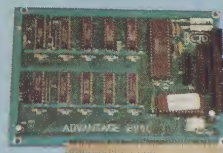
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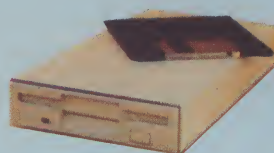
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# Golden Axe

Virgin

It seems a good beat 'em up is always going to pull the punters in an arcade, and that's just what Golden Axe has been doing for the past couple of years or so. With its array of giant sprites, is it too much for the Amiga to handle?

Although the coin-op is technically advanced, the gameplay is firmly rooted in that old favourite Double Dragon. Death Adder is the villain, who's captured the King and his daughter. Three battle-hungry warriors step forward as a call goes out for a rescue team. You can choose to play as either the standard barbarian, the axe-swinging dwarf, or the kinky leather-clad Amazon woman. Player two gets the choice of the remaining two characters.

**"Each character has a different kind of magic, although they all have the same 'smart bomb' effect, killing or weakening all the visible enemies."**

A gothic fantasy world is the setting for the game. Through the five levels, you make your way, Sword of Sodan style, across a map of strange lands, finally to end up at the castle where Death Adder resides. Depending on your character, you're armed with either a sword or an axe. Pressing the firebutton activates the main attacking move; a flurry of head and body blows, occasionally followed up by your character throwing the opponent across the screen. Jumping into the air allows you to come down on top of your opponent, and make an attempt at cleaving their skulls from above. There's also a variation on Barbarian's



flying neck chop, although you won't see any decapitation here. Your final option is the body check.

If things start getting out of hand, you can always call upon your magical powers. Depending on how many magic pots you've collected on the way, you'll be able to cast a spell that could merely stun a few enemies, or go as far as killing some of the biggest monsters. Each character has a different kind of magic, although they all have the same "smart bomb" effect, killing or weakening all the visible enemies. For a change you get to see these spells in action, some of which are quite impressive. The lesser spells just have a few fiery wisps floating around the screen, while those at the opposite extreme have enormous fire-breathing dragons roasting the screen.

You don't get the chance to pick up extra weapons, but instead you can ride around on a variety of little dragons and lizards. Some breath fire on request, while others can down opponents with a whip of their tail.

Golden Axe makes very good first impressions. It's very similar in look to the coin-op, with big detailed sprites boosting the initial interest. It's also quite easy, so you'll be able to get to the first three or four levels in as many games. With the extravagant spells and savage attacking moves, in the short term it's very addictive. However, completing it won't take long, and the restricted gameplay area makes it feel a bit more like the old Kung Fu Master at times, which isn't going to lead to much long-term appeal. If it's an accurate conversion of the coin-op you want, you can't go wrong. Others looking for a bit more value for money could do better.

T.H.



Graphics: 88% Sound: 70% Playability: 74%

**Absolute Value: 73%** Price £24.95



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'Brilliant!' is the verdict of our youngest reviewer ever on MY PAINT in this month's issue of AUI.

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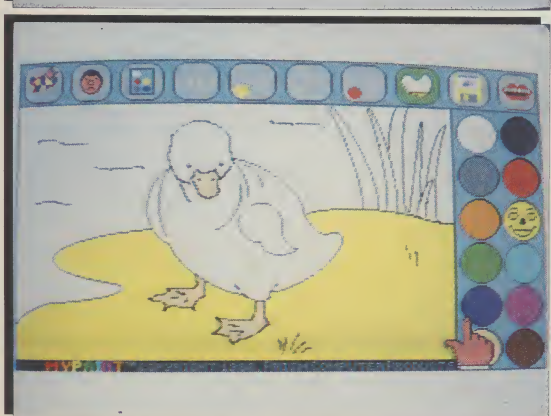
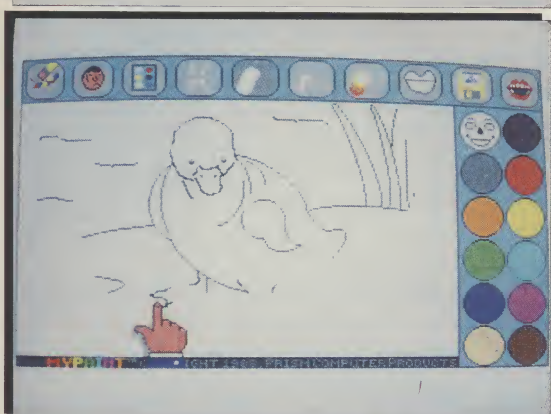
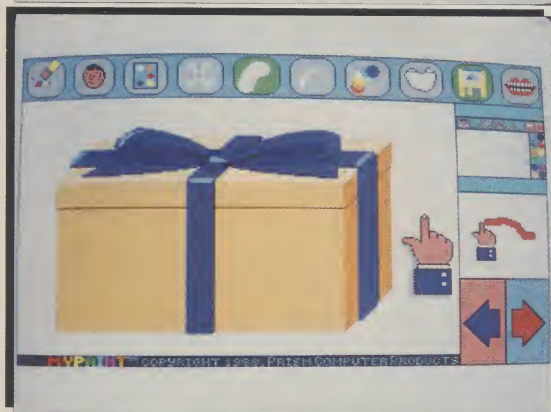
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# Teenage Mutant Hero Turtles

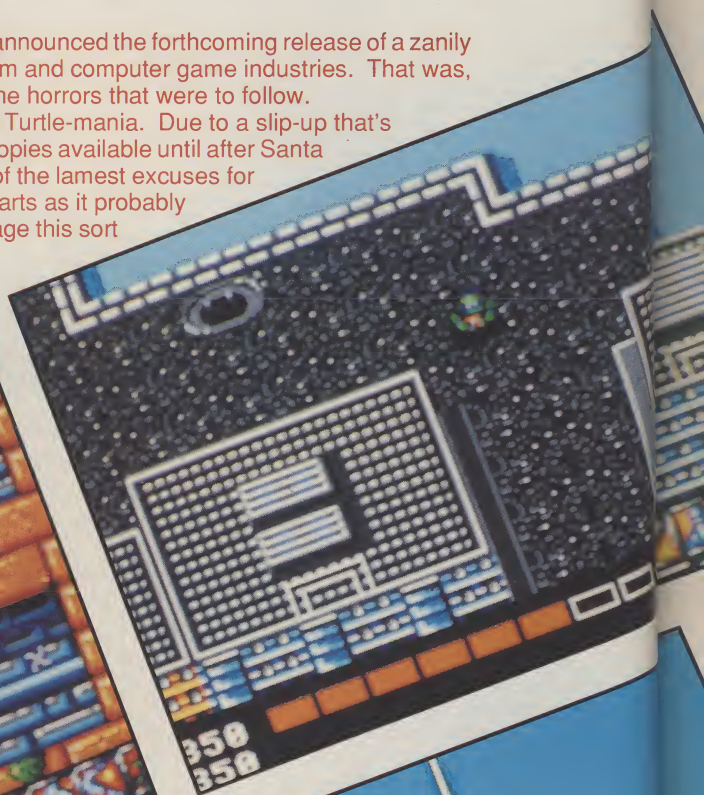
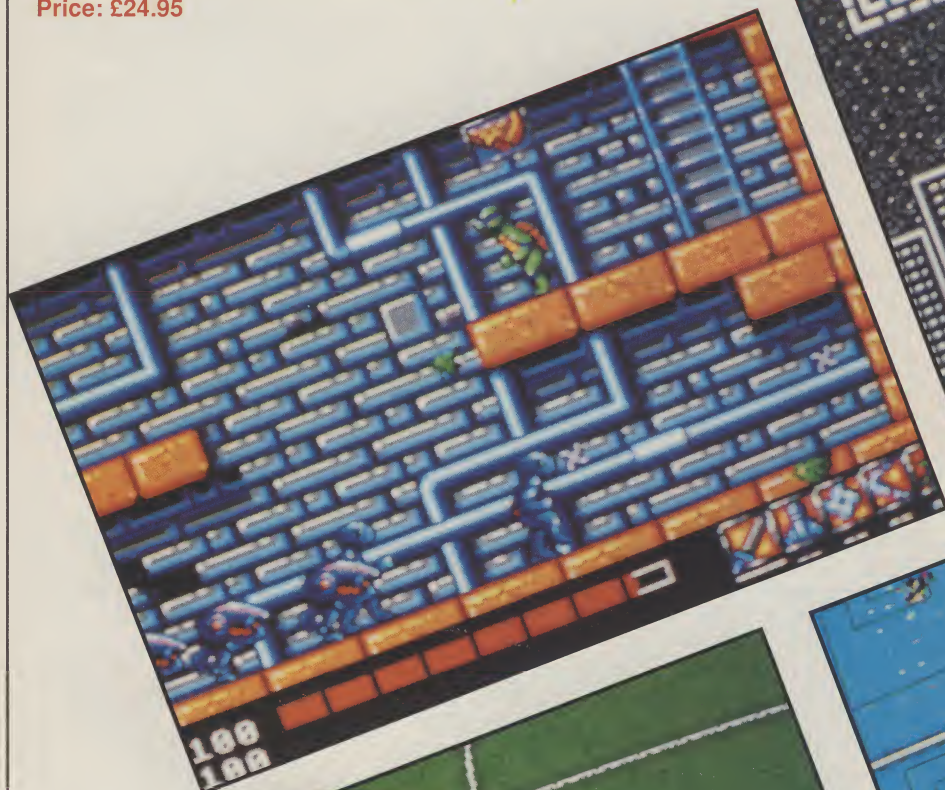
## Image Works

I remember chuckling to myself as I read an American magazine, which announced the forthcoming release of a zanily titled game. At the time it seemed quite a witty parody of the popular film and computer game industries. That was, of course, before the inescapable Turtle invasion. Little did I know of the horrors that were to follow.

Mirrorsoft released their Turtle game at what was, I pray, the peak of Turtle-mania. Due to a slip-up that's fishier than Billingsgate market, Mirrorsoft unfortunately had no review copies available until after Santa had made his rounds. What a surprise then, that it turns out to be one of the lamest excuses for a computer game you'll ever find. It sold well of course, topping the charts as it probably will do for some time. It's a bit late now, but unless you want to encourage this sort of thing, spend your hard-earned elsewhere.

**Rating: 30%**

**Price: £24.95**



## Final Whistle

### Anco

More tweaks and additions to your favourite footy game are now available. Final Whistle isn't as you may think, the last installment of the Kick Off 2 add-on saga, but looks like being the most substantial. Now you get stronger aftertouch (which allows a very slight "S" bend if you're quick), two more kits and four more pitches. Injured players now receive the attention of a trainer, and you can choose to play as the goalie if you like. The corners have been revamped, giving you more control, as have the throw-ins. There's an option to play with offside rules, and a new move allows you to flick the ball into the air, before heading or performing an overhead kick.

The additions are fairly minor, but Kick Off fans will lap it up, and it will extend this amazing game's lifespan further still. Remember though, you need the full Kick Off 2 game in order to run it.

**Price: £12.99**



## Horror Zombies From The Crypt *Millenium*



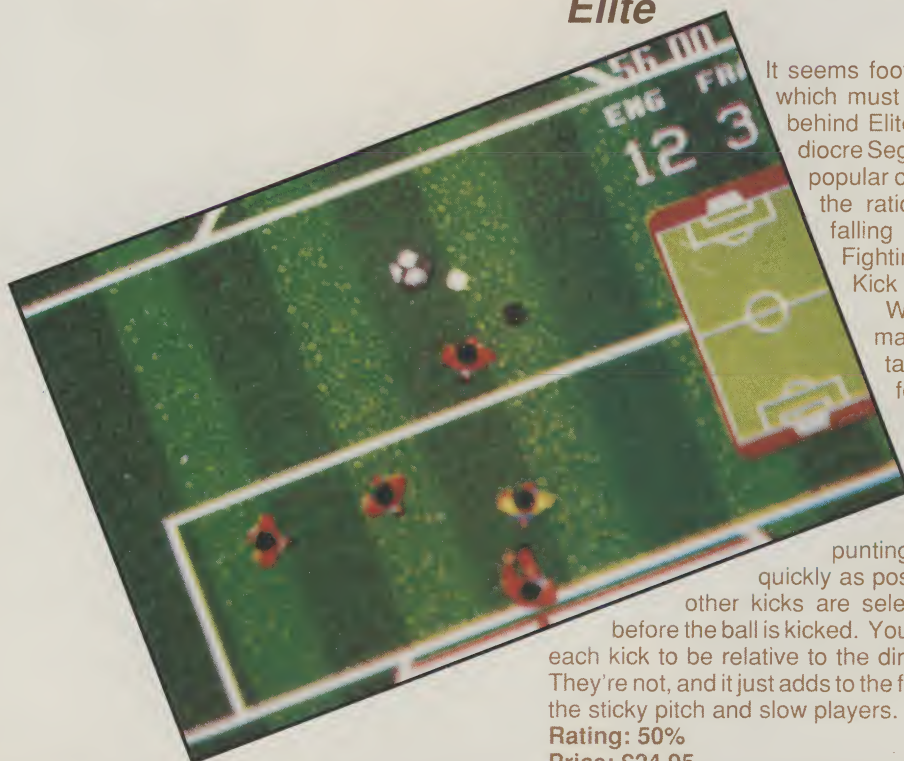
After the dramatic intro, which somehow manages to be both impressive and tacky at the same time, *Millenium's* horror flick spoof begins to go downhill. Controlling a wooden-limbed all-American teenager, you set out for a session of late-night ghoulie-bashing.

Starting out looking like *Again Again's* *The Munsters*, the game soon shifts from a standard multi-screen arcade adventure, towards more obvious *Ghosts 'n' Goblins* style gameplay. Although the scrolling's smooth, at times the graphics and level designs have that "knocked up in a lunchtime" look about them. It's saved from complete failure by the inclusion of a few nice little details, like the tip-toe feature and the short but gorey death sequence. One for the budget labels.

**Rating: 58%**

**Price: £24.95**

## World Championship Soccer *Elite*



It seems footy games will always sell, which must have been the reasoning behind *Elite's* conversion of this mediocre Sega Megadrive title. The now popular overhead view is used, with the ratio of sprites to pitch size falling between the extremes of *Fighting Soccer's* confines, and *Kick Off's* sprawling expanse.

*World Championship Soccer* makes the most common mistake seen in footy games, by forcing a game that relies almost solely on passing.

Any players who try to run with the ball are swiftly dispossessed, so tactics are narrowed down to

punting the ball up the pitch as quickly as possible. Chips, passes and

other kicks are selected by moving the stick before the ball is kicked. You'd expect the directions for each kick to be relative to the direction the player's facing. They're not, and it just adds to the frantic confusion caused by the sticky pitch and slow players.

**Rating: 50%**

**Price: £24.95**



# ADVENTURE NOW!

**Andy Moss celebrates the rise in popularity of strategy and adventure games**

This year promises to be a great year for strategy and adventure product. I think that, at last, software publishers have realised which Johnny is growing up and is demanding a more sophisticated mental test than just blasting aliens into the next instalment of X-Out, and also that Johnny's mum and dad have shown an interest that stretches beyond putting a plug on the computer and buying software presents. This increased demand has enabled publishers to look for much more varied and interesting titles to give us; and with the increased capacity that 16 bit hardware offers, we can all look forward to some outstanding entertainment this year. For the whole family. Watch this space. Anyway, onto this month's reviews, where I have for you, ELVIRA, CODENAME ICEMAN and LOOM, but first.....

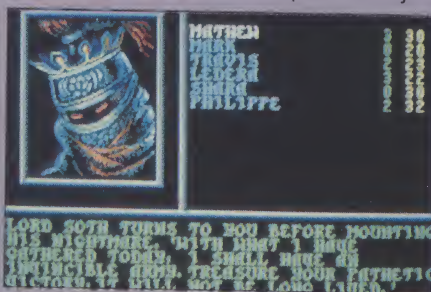
## ADVENTURE NEWSDESK

### MASTERTRONIC REVIVE INFOCOM

Good news for Infocom fans appalled at Activision's decision to delete titles from their back catalogue. Mastertronic's 16-bit budget label has snapped up five Infocom classics, ZORK, WISHBRINGER, PLANETFALL, HITCHIKERS GUIDE and LEATHER GODDESSES to be released under an 'Infocom from Mastertronic' banner. All at bargain basement prices. Nice move from a company that is really keeping adventure in the forefront of its range since David Bishop joined the team.

### GOLD EXTENDS KRYNN

A year on since the Champions of Krynn



The Death Knights of Krynn. ▲

defeated the forces of evil, US Gold are to release a sequel entitled 'THE DEATH KNIGHTS OF KRYNN', starring none other than the Lord of the Death Knights, Soth, himself. The new game promises an enhanced playing and combat system (as usual) and the chance to transfer your characters from 'CHAMPIONS' and progress them to even higher levels than before. Release is scheduled for late April.

### CONSTRUCT A TYPHOON

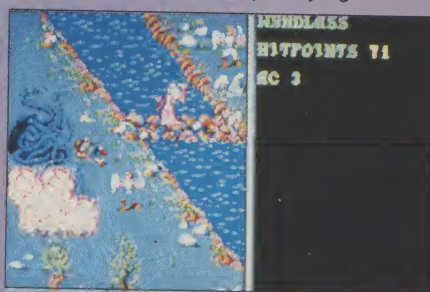


Typhoon of Steel. ▲

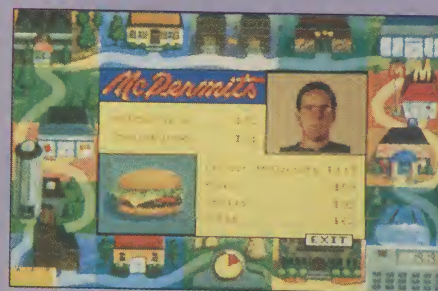
One of SSI's best sellers is now available on the Amiga, 1 meg only though. TYPHOON OF STEEL the sequel to 'Panzer Strike', is a wargame construction set that focuses on squad level tactical combat in the Pacific, Asian and European theatres of WW2. Every conceivable weapon and armoured vehicle is available for use in scenarios that can recreate famous historical battles or an entire campaign. RRP £29.99.

### SIERRA SNAPSHOT

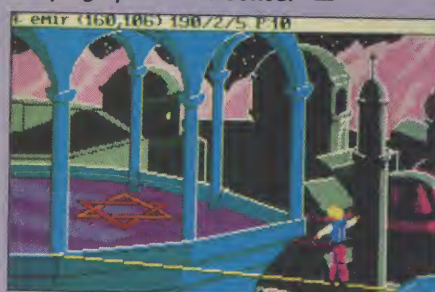
Here is a sneak view at the two new Sierra games due out next. 'Keeping up with the Jones' is a kind of computerised board game that entails you trying to outdo



The Death Knights of Krynn. ▲



Keeping up with the Jones. ▲



Heroes Quest II. ▲

your opponent in anything to do with everyday life. This is a radical departure from Sierra's core software direction and is a brave step. 'Heroes Quest II' or 'Quest for Glory', as it will now be called, puts us firmly back on familiar territory and, as you can see, looks every bit as good as its illustrious predecessor. There will, of course, be a review of both of these as soon as I lay my hands on them.

Whilst I am on the subject of Sierra, I have just seen their promotional video, which has clips from the new KINGS QUEST V. Sierra are saying that this game represents 10 megabytes of data, 19 man years of time, and a million dollars of investment. Now all that might sound like a typical piece of American marketing, but what I can tell you is that KINGS QUEST V looks stunning. The graphics, animation and music are, by far, the best that Sierra has produced to date. Add to that a totally new interface which has dispensed with typed input and instead relies on an intuitive icon-based system, and you have a piece of entertainment software that is very impressive. Bear in mind though that I have only seen a video of the game screens, and that any thoughts



should be held until the actual review.

## AUSSIE WARLORDS

Australian wargame house SSG, under license from Electronic Arts, are releasing WARLORDS, an eight player strategy game played across the fabled lands of Illuria. A kind of medieval RISK, Warlords starts you off in your home castle with a mission to swallow up all your opponents properties, some of which are located behind natural barriers, others being mighty fortresses. Heroes can be recruited to explore ancient temples and ruins for gold, knowledge, and to find and use magical weapons. The game features sixteen different types of fighting unit, from light infantry to Navies and creatures from Hell! Sounds like my sort of melee. Out shortly at £24.99

## PRINCE OF PERSIA- AN UNPLAYABLE GAME?

Has anyone out there finished Prince Of Persia yet? Or more to the point has anyone got past the sixth screen! Maybe it is my joystick, but I just cannot master the character movements. When I want him to tread carefully, he runs. When I want him to jump he doesn't, and all that happens is I die a painful spiked death.

Can anyone help? (Well, Andy wrote this before Tony Horgan's review was finished. P of P can be quite frustrating so next month we will include some special tips for it.)

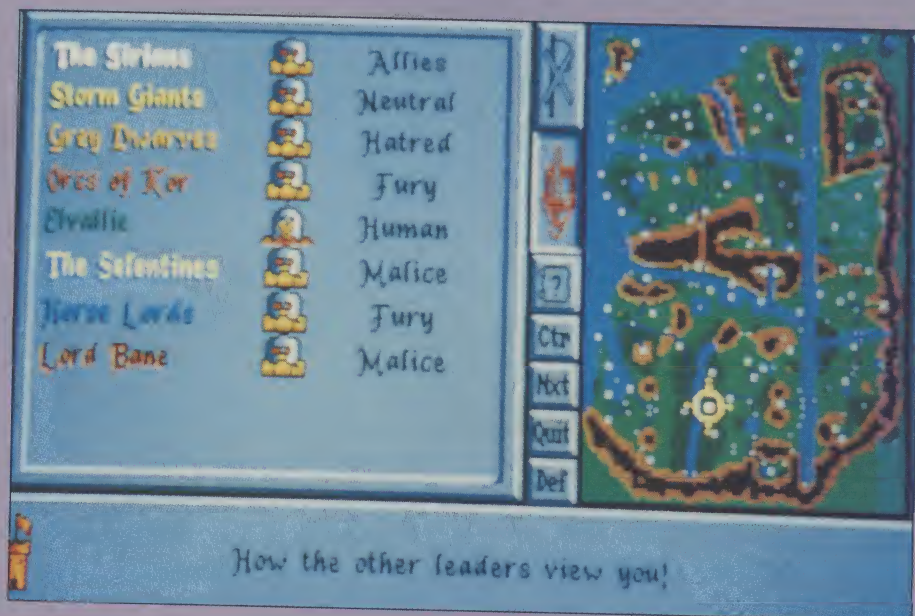
## ADVENTURE HELPDESK

This month focuses on CASTLE MASTER, that clever polygon adventure from Inventive. To get you started.....

The overall quest is to rescue your sibling partner, either the Prince or the Princess, which ever is the opposite to the character you choose to be. Apart from the puzzles you must also have the right keys to open the doors.

At the start, you are faced with a closed drawbridge. Round the corner is the Wizard's hut, walk into the doorway to enter and take the cheese off the table and eat it. Go up to the picture on the wall, look closely at it and it will tell you how to open the drawbridge.

When you enter the gatehouse of the castle, turn immediately right and go through the doorway into the right atrium, then ahead into South East Tower. Turn left a little and you will see a door, open it and enter the kitchen. Take a step forward and turn round to find a key and collect it (it is Igor's room key for the room next door). Exit kitchen, close door behind you and turn right, go to the next door along, action on the keyhole and it will open (you have the right key!). After you have dealt with Igor, (hint - he has a thick hide)



Warlords. ▲

continue around to tower corner, you come across a puzzle which is a gate with some buttons on the wall. Press the buttons, and go through the doorway to your left into the east passage, then ahead into the North east Tower. Keep going, eat the cheese you find lying there and try climbing out the window! Go through left doorway into the North passage. That should get you half way round the castle and well on your way.

A.M.

## ADVENTURE REVIEWS

### ELVIRA MISTRESS OF THE DARK ACCOLADE/HORRORSOFT

In case you haven't heard, Elvira is pretty big in the United States; actually Elvira. ▼



she is pretty big everywhere these days, but enough of that kind of talk. This is going to be one of those reviews that refuses to lower itself to using cheap shot cliches just because Elvira is known for having rather large knockers. You will not be reading about having to find a large chest somewhere in the castle (although that is just what you have to do), or where to find a couple of enormous melons that are hanging around, no, none of that stuff. Instead let us concentrate on describing a graphic adventure that has been in the works now for over 18 months.

Remember Scott Adams, acclaimed by many to be the grandfather of home computer adventuring? Well, most of his games were marketed over here by Adventure International run by Mike Woodroffe who in fact is the author of Elvira. Horrorsoft, as the new company is called, following the demise of Adventure



International, began life with an association with Tynesoft, who promoted their first release PERSONAL KNIGHTMARE which had some excellent reviews (mine included) and was the foundation for the core programming system that Elvira uses today. Elvira, as I mentioned earlier, has been in development for a long time, and I first saw a working version of it two PCW shows ago in 1989. Since then, Tynesoft went into liquidation, and Mike went looking for a publisher that would give his new infant the sort of marketing it deserved. And thankfully, Accolade with all their clout have pulled out all the stops, both here and in the States, where I said before that Elvira is very popular indeed, and packaged the whole thing up extremely well.

So, what it is it all about? The game focus is not so much about Elvira's curves, but on the horrific with plenty of blood-curdling graphics not too dissimilar to the Jack The Ripper adventure style from St Brides that caused such a huge furore. There are pictures of slashed throats, heads boiled in soup and eyes being ripped out by giant eagles. However amongst all this gore, there is the tongue-in-cheek humour that is Elvira's trademark. The adventure takes place in an 800 room castle and its grounds, and is a mixture of puzzle-solving graphic adventure and fantasy role playing, where your character has to fight many nasties and earn experience etc.

What has happened is that Elvira has been redecorating her newly acquired castle, and mistakenly awakened the spirit of the long dead Queen Emelda, a wickedly evil woman who worshipped the devil and had many undead followers. Her imminent return to life can only be halted by the reclaiming of the six keys needed to open a hidden chest, (see I told you so!) wherein lies a scroll of 'spiritual Mastery', that will put paid to old queenie forever.

You, as a new adventurer have turned up on the castle's doorstep to offer help to our heroine in her time of need. That is where the game starts, with a first person view of the castle gates along with a fine atmospheric stereo soundtrack. The screen is divided up into a main viewing area with icons surrounding it for movement, actions (look, examine, open etc) and when in fighting mode instructions for battle (lunge, hack, parry etc). There is a large space under the main viewing area where your inventory is shown.

There are over 300 objects that can be manipulated, a hundred characters to fight with, hand-to-hand, (or should I say sword to sword?) complete with a satisfying splurge of blood when your blade strikes home, complimented with a likewise sound effect. Or how about a cross bow (recommended), where you even get the chance for some shooting practice to go with it.

An object is picked up by simply dragging it into the inventory box and, of course,



Elvira. ▲

can be discarded the same way. The puzzles are tough, and I would recommend saving the game often, only because fighting can get rather terminal if you pick on a character that you are not experienced enough to fight. You will also need to create spells (a spell book comes with the package) which can also be used against your foes, but the ingredients, which are found throughout the castle, must be mixed in the kitchen where Elvira will be waiting to help you.

Watch out for the maze in the garden, very tricky, and beware, also, of innocent looking characters who may not be all they seem!

A good way to begin is to turn right just inside the gate, and collect the large shield, then when you get the chance, go to the armoury on the first floor and collect a

sword and the cross bow. At least you will then be well equipped to fight a good fight if nothing else.

I enjoyed the game immensely; the graphics are great, the atmosphere horrific, and the fight scenes although fairly simple, have some great screaming and howling sound effects.

This is a game from a true graduate of the university of adventure, who learned his craft with the best in the business and has delivered the goods. More please, Mike.

A.M.

**Graphics: 88%**  
**Sound: 90%**  
**Playability: 95%**  
**Absolute Value: 93%**  
**Price: £29.99**

Elvira. ▼







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*Amiga Computing - October 1990*

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Highly recommended - *Amiga Computing October 1990*

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## LOOM

US GOLD/LUCASFILM

Infocom may be dead and buried, but the talent it spawned is still very much with us. This enchanting tale is brought to us from Brian Moriarty, author of some great Infocom classics, such as TRINITY, WISHBRINGER and BEYOND ZORK. It is the tale of Bobbin, an apprentice of the Weavers Guild, who is thrust into a world of danger and magic when all the members of his guild are swept away into oblivion. He alone is left to unravel the mystery, save the Guild and possibly rescue the universe from an unspeakable disaster.

Unlike wizards, who simply mixed ingredients to make spells, the Weavers spun musical notes from their Distaffs (long wooden canes) to weave spells, and

poor Bobbin begins his adventure knowing only one weave, OPENING. This is only good for opening and closing things and of course as his adventure progresses he learns many more, and one of the charms of this game is that each time you play it, the notes will be different. In fact there are three levels to play it at; practice level automatically plays the notes of each spell for you and in the right sequence, standard level highlights each note and it's letter for you to copy down, and in expert mode you play the game by ear, having to identify just what note is being played. There is a bonus for playing at this level and that is an animated end sequence that only kicks in if the game is played in Expert.

The puzzles are fairly simple, you cannot die and it does not take all that long

to complete, so what is the big deal about the game? Well it is very pretty to look at, and the music is also a joy, and just for once it is a pleasure not to have to sit for hours on end, constantly saving as you go trying to overcome one puzzle after another. As I said before it is a game full of charm, no mapping, no typing, just point and click. It is a game that is designed to be completed, so you can try again at the harder level. You do find yourself getting drawn in to the character, and by listening to the audio tape supplied with the package, you will not fail to become immersed in Bobbin's world of weaving.

A.M.

Absolute Value: .....89%

## CODENAME ICEMAN SIERRA

Sierra have now opened up in the UK and that is good news. It means that all the latest Sierra product will be available to us even quicker than before. ICEMAN is a game written by Jim Wallis the author of the POLICE QUEST series, and if it has a fault it is that the thing plays so awfully slow compared to other Sierra adventures. That apart, what you have is a full bloodied political thriller, coupled with a submarine simulation, that gathers pace as you get further into it. From a gentle start, where you, as Secret Agent Johnny Westland are taking a well earned vacation in Tahiti (getting to know the local female community and administering the kiss of life along the way), when you are summoned back to the Pentagon to undertake a mission of national importance. You must crack the security of a terrorist base and rescue a kidnapped ambassador using a nuclear powered submarine (which you have to navigate successfully), a one man diving vehicle, and by scuba diving past electronic harbour surveillance.

All the usual Jim Wallis bits are featured, his obsession with the rule book (procedure must be followed at all times) his attention to detail (in order to sail the sub you must plot a complicated course yourself), and his first hand knowledge of the criminal world (he is an ex policeman). All this combines together to form a thrilling scenario, and a frustrating one, as many of the puzzles are very sneaky indeed. For instance, there is the one in the Pentagon, where a guard asks for your ID which you give him, however, when he returns it to you, it is someone else's! You have to ask him twice for it, otherwise later on you will not be allowed onto the Sub. You have been warned.

Another well-written, value for money, Sierra adventure, just a shame about the speed.

A.M.

Absolute Value: .....80%

THATS IT FOR THIS MONTH. CHECK OUT NEXT MONTHS ISSUE FOR SOME MORE HELP, NEWS AND HONEST HARD HITTING REVIEWS.

Loom ▼





# U.K. GAMES CHART

Game	Company	Last Month	Rating	Price
1. Powermonger	Electronic Arts	(—)	82%	£29.95
2. Golden Axe	Virgin	(—)	73%	£24.95
3. Indy 500	Electronic Arts	(4)	93%	£24.95
4. Lotus Espirit Turbo Challenge	Gremlin	(5)	86%	£24.95
5. Cadaver	Imageworks	(3)	89%	£24.95
6. Teenage Mutant Ninja Turtles	Imageworks	(1)	30%	£29.99
7. F-19 Stealth Fighter	Microprose	(2)	78%	£29.99
8. Robocop 2	Ocean	(—)	N/A	£24.95
9. Kick Off 2	Anco	(6)	97%	£24.95
10. Car-Vup	Core Design	(—)	81%	£24.99

Bubbling under (and will they hit the surface? Watch this space!)  
Digital Intergration's ATF II, Psygnosis' Carthage, Systems 3's Ninja Remix, and Mindscape's Captive  
(judged by the UK software industry as "Game of the Year 1990.")

## Recommended Games of the past three months

*Each month we review a whole pile of games; some awful, some good, occasionally some terrific. Some of the best never even get into the charts. In this new section we recommend games which have been the best in the past few months to keep you updated*

*when you part with your hard-earned cash. There is so much hype around, our un-biased and analytical approach should be a good guide on what to buy. Games we recommend have to be worth every penny — You can believe that.*

### **The Killing Game Show**

**Psygnosis**

**£24.99**

**AUI Rating: 94%**

This fascinating platform arcade game is one of the best ever from the Psygnosis label. Fourteen pits of death must be encountered before you have won this zany future TV show. Replay and fast forward allow you to skip previously conquered ground as your mind races against the killing liquid which rises from the base of the pit.

### **Harpoon (1 Meg only)**

**PSS**

**£29.99**

**AUI Rating: 94%**

For lovers of strategical warfare, especially naval, this simulation from the States is an accurate presentation of current military strategies. Several missions are available to you, as commander of a task force either on the side of NATO or the Soviet Union. There are several "realism" settings which allow for easier, or harder, gameplay. The developers are also creating data disks with different scenarios and missions.

### **Indy 500**

**Electronic Arts**

**Price: £24.95**

**AUI Rating: 93%**

EA's simulation of America's Indianapolis 500 race combines a high level of technical detail, with spectacular fast-moving gameplay. Solid 3-D graphics are used to portray the cars, track, pitlane and grandstands from just about any viewpoint you choose. Despite the highly detailed graphics, it's one of the fastest race games around, deserving the attention of all boy-racers.

### **Car-Vup**

**Core Design**

**Price: £24.95**

**AUI Rating: 81%**

Far from your average car game, Car-Vup is really a platform game that just happens to feature a little buggy as the central character. Gameplay along the lines of a simplified Rainbow Islands has you leaping around horizontally scrolling platforms, dodging various nasties. It's a lot more fun than it sounds!

### **Speedball 2**

**Image Works**

**Price: £24.95**

**AUI Rating: 91%**

Spikes, rivets, balls and helmets may all sound a bit kinky, but sex fiends will be disappointed to find that Speedball 2 is a violent future-sport. Steel-plated arenas are the venues for this barbaric variation on indoor soccer. Setting new standards in graphics, with top-notch sound effects and gameplay, Speedball 2 is a bare essential for armchair sportsmen.

### **Prince of Persia**

**Broderbund**

**Price: £24.95**

**AUI Rating: 92%**

A brilliant arcade adventure from the creator of Loderunner, Wings of Fury and Choplifter, Prince of Persia is one of the most compulsive games released for months. What at first seems to be a mundane and graphically dull game is uplifted by some superb character animation and devious level designs. Don't be deceived by its unexciting look in still shots. Get a copy ASAP.





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## FALCON Air Combat

A Fighter Pilot's guide to Falcon, the F-16 Flight Simulator by Pete Bonnani.  
Published by McGraw-Hill

**T**his book was written by a former F-16 fighter pilot who just happened to love computers and was a fan of the F-16 Falcon computer simulation by Spectrum Holobyte. These two things made Pete the ideal man to become the master of Falcon.

Pete Bonnani's real-life job gave him the lightning fast reflexes and the mental agility required to overcome the hazards of Falcon's most difficult missions. Pete would like to share this ability with others as he sets about teaching you everything you need to know from the basics of flying the Falcon, and then how to "smoke" MiGs, well there's no one better qualified to learn from.

If you already have Falcon then perhaps you, like me, suffered at the hands of the enemy time after time as your rank improved and the more complex missions became harder and harder to complete. It is a fact of life that there comes a time when even Falcon's appeal seems to wane when you cannot accomplish any more of the missions.

What happens then? ... The answer, until now, was to use full power, pull back on the stick, climb to 60,000 ft and shove both disks into the engine air intakes and hopefully they will become a little bit of

vapour helping to plug the hole in the ozone layer.... But now take heart, help is at hand with this extremely well written 240 page book.

The program was published in 1989 and with it came the fully documented instruction manual, full documentation, however, does not necessarily give you a full understanding into why, when and what actions should be taken in any particular situation. Understanding is what this book is all about.

The author says that the F-16 is a unique aircraft to fly. The Falcon simulation captures much of the speed and power of flying the real jet and in doing so requires the "pilot" to know and practice air combat fundamentals.

The book will teach the Falcon simulator pilot the requisite skills needed to fight in the hostile environment created in Falcon. The instruction given in the book parallels the actual courses taught in real life to all new Falcon pilots, and also covers "game-specific" techniques. Armed with this knowledge, you can become a top notch armchair fighter pilot.

Early chapters in the book give you the background information needed to help you understand aerodynamics and flight mechanics, there are screen shots with

annotations liberally sprinkled throughout the text. Included in the early learning stages are the basic flight manoeuvres, take-offs, rolls turns loops and landings.

Next you are given an understanding of your air combat weaponry, something that in real life takes a student four gruelling months to study. A short history of weapon development is also given a little coverage as is your radar defence systems.

There is a complete guide to the tactics you should employ in any eventuality, the decision you make at the time will depend totally on how much you have learned and if you have made full use of the book then a successful outcome is inevitable.

Personally I have taken time to study this book, with Falcon and the extra mission disks I have now been promoted to the rank of Colonel, previously I could only make the rank of Major. Whatever the author set out to achieve with this book it is clear that if you already own Falcon or are thinking of buying Falcon then you will benefit with the helpful information given in this book. Essential reading!

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# LIGHTFORCE

**Mike Nelson learns physics gift-wrapped in a game. . .**

One of the more confusing subjects in physics is the art of optics and what happens to light when it passes through different lenses or bounces off mirrors. The Aussies have been busy again, coming up with a package which both teaches and tests the elements of this subject. LightForce is marketed as "providing strategy, huge destruction, progressive learning, lateral thinking and impressive graphics", so to put this to the test, I had a quick tutorial on optics and got stuck into some of this wanton annihilation, more of which later.

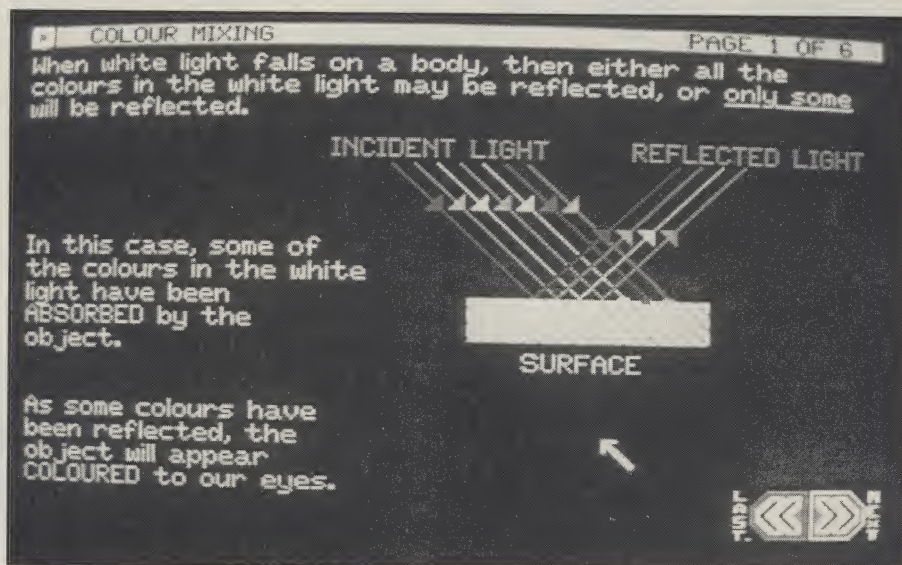
The package consists solely of two disks and a box, with not a shred of blurb about the programs inside. All the instructions are relayed from the program, a bit like the days of the VIC-20, but don't let this ecologically sound approach put you off, as we could probably do without most of those trendy reams of instructions, anyway.

When you get through the usual introductory "who did what" pages, you are presented with a screen of four options which seems like a good way of structuring this review. Starting with instructions then, you are taken through a sequence of pages telling you how to go about becoming an expert in optical physics, and armed with this knowledge you can confidently march into the tutor section.

***"The questions are actually quite tricky, with just a right or wrong response from the computer"***

Selecting "tutor" brings up another ten options, categorising nine different aspects of the subject, and the last one brings up a similar menu full of a further nine alternatives. The first set are concerned with the basic concepts of optics like light itself, mirrors and lenses. Each category is presented as a series of pages with colourful diagrams and concise descriptions of the subject matter. Within a few minutes, all my old physics nightmares were flooding back, but the explanations in LightForce soon steadied the nerves. Some of the subjects contain many pages of information, and you can flip back to go over anything you find difficult.

The second batch of tutorials is less about theoretical physics, attention being centred on real world application of the previous principles. This is important for a subject like physics where it is easy to get lost in a sea of formulae and derivations (take it from one who knows!). While the basic formulae are



given, applications such as microscopes, telescopes, eyes and cameras are also explained, along with the business about colour generation and more esoteric topics like mirages.

I couldn't contain myself at this point and selected the "game" option to try out some of this mass destruction promised earlier. I was pleasantly surprised by the game as it was not the token gesture I was expecting, instead having pretty decent graphics and a genuine raison d'être. Okay, so Tony H. is not going to kick out Kick Off 2, or leave the Lemmings to their fate in favour of LightForce, but the game does actually reinforce some of the more basic concepts of optical physics. The idea is to drive around this scrolling landscape, zapping various unfriendly installations, to rob the banks of the pirates (the nature of their piracy is undisclosed, but I wouldn't rule out those who nick software as the targets!). As you progress to higher levels, you are endowed with fancier hardware which you will find invaluable in your quest. Mirrors are used to bounce the photons from your gunship, and lenses will concentrate the light on armoured targets so your knowledge of angles becomes important. The game is quite challenging, more in terms of strategy than out and out blast the blighters to bits action, and is a welcome change from the heavy duty physics stuff.

Once you've got all that aggression out of your system, it's time to get back to the reality zone and try your hand at the next option, the exercises. The options here are for multiple choice questions, playing with colour and lens/mirror constructions.

The questions are actually quite tricky, with just a right or wrong response from the

computer. Alone, this approach is usually inadequate as it teaches you nothing about where you are going wrong, but with a system such as LightForce, you can always jump back to the appropriate tutorial section if the going gets too tough. I was amazed at getting about half of it right (not as staggered as my old teachers would be, but that's another story), and I would like to have been told which section to refer back to when I was incorrect, adding to the friendliness of the program.

Colour Maker is like an enhanced colour requester such as DeluxePaint's, with the addition of a filter generator so you can see the effects cutting out certain frequencies of light.

The bit about optics always I hated was constructing ray diagrams for the various lenses and mirrors to see where an image would appear, its size and which way up it is. LightForce will do all this for you so homework should be a doddle and this is one of the most useful sections of the package.

The learning process is highly individual; everyone has a different approach and the flexibility of any teaching aid whether it is a text book or computer program will determine its ultimate usefulness. I like using LightForce, its many sections provide a logical, staged way of teaching this none too simple subject. LightForce is very promising indeed, and I hope that TSA can continue to produce software which is both informative and fun to use.

**M.N.**

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# VIRUSES

***Erik Lovendahl Sorensen, a longtime student of Amiga viruses, now collects them avidly. Now one of the world's greatest experts, he advises on how to avoid them and what to use if you can't. . .***

**U**nfortunately things look pretty grim right now. Our wonderful Amigas are being attacked by one evil virus after another; how it will all end, we dread to think.

Many Amiga owners have gradually made acquaintance with up to several different viruses; only six months ago the problem was not so serious and VirusX, for example, could cope with most of them. Today this, otherwise, good virus killer is becoming obsolete; one reason for this is that it knows far too few viruses and another is that it cannot be used for hard disks which are becoming increasingly popular.

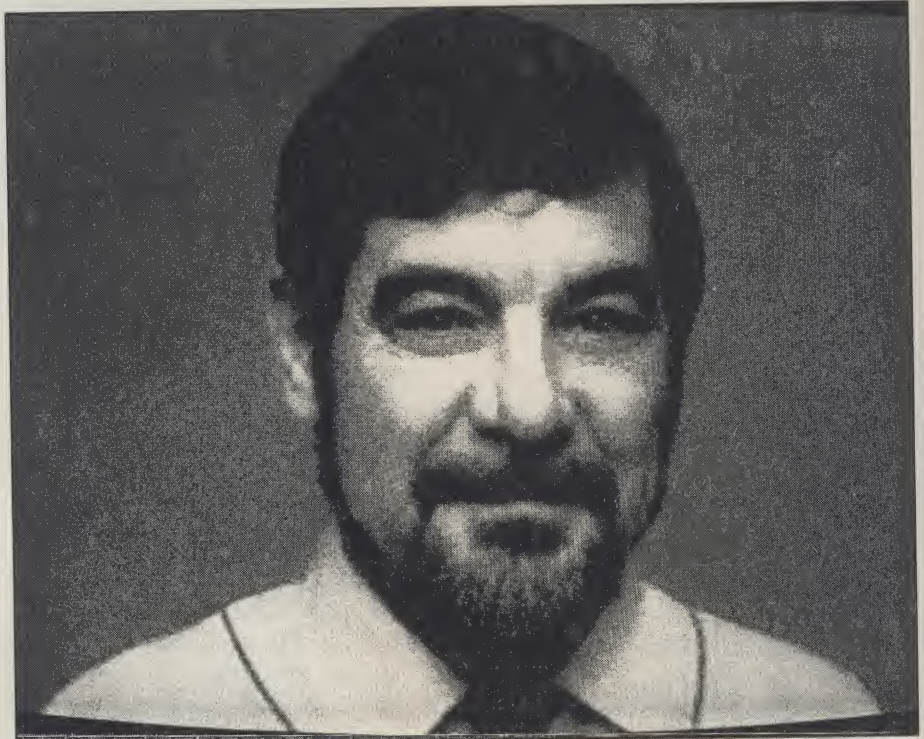
I have followed the virus problem for the past four years and it has gradually become my hobby to 'research' into various viruses. Believe it or not, I must be one of the few people in the world who is pleased to meet a new virus. (Think of me the next time you encounter one!)

Lots of Amiga users may be confident that they can manage to 'kill' a new boot virus before it can ruin part, if not all, of their software library, but beware! The situation is becoming more alarming. New Amiga viruses are appearing at a rate of one every week and, even worse, most are non-boot viruses. December 1990 was marked by no less than four of these, along with two new boot viruses. In other words, more viruses have appeared in a single month than in the whole of the first three years after the launch of the Amiga!

In my view, this development will become more serious if all of us do not do something to stop the spread.... and that means YOU TOO!

So what can be done? I will not go into more technical details, but will just offer some ground rules:

1. Always keep your disks write protected. If you need to write on the disks then turn off the Amiga for 30 seconds so that any possible viruses which could have sneaked into the memory will be erased.
2. An embarrassing topic, pirate cop-



**Erik Lorendahl Sorensen - International Virus Hunter.**

ies; never swap software with someone you do not know. Viruses flourish, typically, in school yards and between children, teenagers, and grown-ups who only consider the Amiga as a fun games machine. Learn to say "No Thanks!"

3. Once the accident has happened, do not despair but try to get hold of one of the newest virus killers which can often be found in P.D. libraries or on Bulletin Boards. I will mention another possibility later in this article.

4. If you download programs by modem, ask the 'SYS OP' which virus killer program it uses to ensure that the files on the board are virus free and, last but not least, which version. Sometimes you will find the 'SYS OP' has been asleep for the past hour or so. Avoid boards like that, especially if you have a hard disk.

5. If you are one of the fortunate owners of an Amiga 500 with revision 5 and upwards, or an Amiga 2000 type B, I strongly recommend you go and buy the new Fatter Agnus (around £40), which hinders nearly all viruses from hiding in the memory and infecting floppies, RAM, or the hard disk. If fitted when you warm reset (Amiga-Amiga-Ctrl), your machine will execute a 'cold reset' and whoosh! - away with possible viruses.

6. If it is a 'friend', or 'acquaintance', who has written the virus, then go straight to the police, or phone me. People like that are not clever, but rather something else. Think of Robert Morris in America, the man behind the RTM virus on the PC's. Now he owes society millions, has a bottomless debt, a criminal record, and a ruined life! There is a worldwide reward in



# AUI's AMIGA VIRUS GUIDE:

	Code	ZeroVirus	VirusX	KDVIII	M.Killer		Code	ZeroVirus	VirusX	KDVIII	M.Killer
16 Bit Crew	+ 0 A	1	1	0	1	Lamer Exterminator II 1b	+ A E	1	1	0	1
Abraham	+ 0 P	1	0	0	1	Lamer Exterminator II 1c	+ A E	1	0	0	1
AEK	+ C L	1	0	1	1	Lamer Exterminator II 2	+ A E	1	0	0	1
AIDS ( Vkill 2 )	+ E 0	1	0	0	1	Lamer Exterminator III	+ A E	1	0	0	1
Alien New Beat ( New Beat )	+ 0 0	1	0	0	1	Lamer Trojan	+ 0 MF	0	1	1	1
AmigaFreak	+ 0 0	1	0	1	1	LSD	+ C F	1	1	1	1
ASS Virus	+ 0 0	1	0	0	1	MGM	- 0 0	0	0	0	1
Australian Parasite	+ 0 0	1	1	0	1	Mega Master	- 0 0	0	0	1	1
Australian Paradise	- 0 0	0	0	0	1	Micro-Master	+ C L	1	0	0	1
Bahan	+ 0 0	1	0	0	1	Microsystems	+ 0 0	1	0	1	1
Bamiga Sector One ( B.S.1 )	+ 0 0	1	0	0	1	Morbid Angel	+ 0 0	1	0	0	1
BandVirusSlayer	- 0 0	1	0	0	1	MT Virus	+ 0 0	1	0	0	1
BGS-9 ( 2608 Bytes )	+ D BF	1	(1)	1	1	Newbeat ( Alien Newbeat )	+ 0 0	1	0	0	1
BGS-9 2 ( Mutant )	+ D BF	1	0	1	1	No Head ( ByteBandit 3 )	+ 0 0	1	0	0	1
Black Flash	+ 0 0	1	0	1	1	Noname 1 ( Incognito )	+ 0 0	1	0	0	1
Blackstar	+ 0 0	1	0	0	1	Northstar 1	+ C G	1	1	1	1
Byte Warrior1	+ C C	1	1	1	1	Northstar 2	+ C G	1	1	1	1
Byte Warrior 2	+ C C	1	0	0	1	Northstar 3	+ C G	1	1	1	1
Butonics B.B. ( 1.1 )	+ 0 0	1	0	0	1	Obelisk	+ 0 0	1	1	1	1
Butonic File ( 2916 Bytes )	+ 0 OF	0	0	0	1	Opapa	+ 0 0	1	0	0	1
Byte Bandit 1	+ B D	1	1	1	1	Paramount	+ C C	1	0	0	1
Byte Bandit 2	+ 0 D	1	0	1	1	Pentagon Circle	+ 0 H	1	1	0	1
Byte Bandit 3 ( NoHead )	+ 0 0	1	0	0	1	Pentagon Circle Virusslayer 1	+ 0 H	1	1	0	1
CCCP 1 Virus	+ 0 0	1	0	0	1	Pentagon Circle Virusslayer 2	+ 0 H	1	0	0	1
CCCP 2 Virus ( 1026 bytes )	+ 0 0	0	0	0	1	Pentagon Circle Virusslayer 3	+ 0 H	1	0	0	1
CCCP 1 Link	+ 0 0	0	0	0	1	Phantasm	+ 0 R	1	0	0	1
Claas Abraham ( MCA )	+ 0 P	1	0	0	1	Phantasmuble	+ 0 R	1	1	0	1
Clist	+ 0 0	1	0	0	1	Phantastograph	+ 0 R	0	0	1	1
Clock Virus	- 0 0	0	0	0	0	Return of Lamer Exterminator	- 0 0	0	0	0	0
Coder	+ 0 0	1	0	0	1	Revenge	+ 0 I	1	1	1	1
Crackright 1.01	+ A J	1	0	1	1	Revenge Bootloader + 0 0	1	0	0	1	1
Crackright 1.02	+ A J	1	0	1	1	Revenge of Lamer 1 ( 4448 B )	+ 0 MF	0	1	0	1
Crackright 1.03	+ A J	1	0	1	1	Revenge of Lamer 2 ( 4560 B )	+ 0 MF	0	0	0	1
Crackright 1.04	+ A J	1	0	1	1	SCA 1	+ C F	1	1	1	1
Dag	+ 0 0	1	0	1	1	SCA 2	+ C F	1	0	0	1
Dasa 1 ( Byte Warrior 1	+ C C	1	1	1	1	Scarface	+ 0 0	1	0	0	1
Dasa 2 ( Byte Warrior 2 )	+ 0 0	1	0	0	1	Self-Writer Pseudo Virus	+ 0 0	1	0	0	1
Destructor	+ 0 0	1	0	0	1	Sendarian	+ 0 0	1	0	0	1
Digital Emotion	+ 0 0	1	0	0	1	Starfire	+ C G	1	1	0	1
Diskguard 1.0	+ 0 0	1	0	0	1	Suntron	- 0 0	0	0	0	0
DisasterMaster ( 1740 Bytes )	+ 0 OF	0	0	0	1	Suntronic	- 0 0	0	0	0	1
Disk-doctors 1.01	+ A J	1	1	0	1	Superboy	- 0 0	0	0	0	1
Disk-doctors 1.02	+ A J	1	1	0	1	Supply Team	+ 0 0	1	0	0	1
Disk-doctors 1.03	+ A J	1	1	0	1	Switch-Off Virus	+ 0 0	1	0	0	1
Disk-doctors 1.04	+ A J	1	1	0	1	Synister Syndicate	+ E 0	1	0	0	1
Disk Herpes ( Phantasmuble )	+ 0 0	1	0	0	1	System Z 3.0	+ 0 0	1	0	1	1
Extreme	- 0 0	0	0	0	1	System Z 4.0	+ E K	1	0	1	1
F.A.S.T Virus	+ 0 0	1	0	0	1	System Z 5.0	+ E K	1	0	0	1
Fast-loaded Byte Warrior	+ 0 0	1	0	0	1	System Z 5.4	+ E K	1	0	0	1
F.I.C.A.Virus	+ 0 0	1	0	0	1	System Z 6.0 ( Telestar )	+ E K	1	0	0	1
Forpib	+ 0 0	1	0	0	1	System Z 6.1	+ E K	1	1	0	1
Gadaffi	+ 0 0	1	1	1	1	System Z 6.3	+ E K	1	0	0	1
Graffiti	+ 0 A	1	1	0	1	System Z 6.5	- E K	0	0	0	0
Gremlins	+ 0 0	1	0	0	1	Target	+ C 0	1	0	1	1
Gyros	- C 0	0	0	0	1	Terminator	+ 0 0	1	0	0	1
GX Team	+ 0 0	1	0	0	1	Terrorists ( 1612 Byte )	+ 0 OL	0	0	0	1
H.C.S. 4220 1	- 0 0	0	0	1	1	The Amiga Freak	+ B D	1	1	1	1
H.C.S. 4220 2	+ 0 0	1	0	0	1	The Revenge	+ B I	1	1	1	1
Herpes-Phanta	+ 0 0	1	0	0	1	The Ripper	- 0 0	0	0	0	1
Hill	- 0 0	0	0	0	1	The Time Bomber	- 0 OL	0	0	0	1
Hoden	- 0 0	0	0	0	1	Tick ( Julie )	+ 0 0	1	0	0	1
Ice	+ 0 0	1	0	1	1	Timebomb	+ D 0	1	0	1	1
Iceman and IRQ Virus	+ 0 0	1	0	0	1	TTV1 1 ( 2608 Bytes )	+ D BF	1	(1)	1	1
Incognito ( Noname )	+ 0 0	1	0	0	1	TTV1 2 ( Mutant )	+ D BF	1	0	0	1
IRQ Run ( 10912 Bytes )	+ 0 OF	0	1	0	1	Turk	+ 0 0	1	0	1	1
IRQ Team 4.10 ( 1164 Bytes )	+ 0 OF	0	1	0	1	UcAIDS	- 0 0	0	0	0	0
HNA Virus	- 0 0	0	0	0	0	U.K. Lamerstyle	+ 0 0	1	0	0	1
JITR	+ 0 0	1	0	0	1	Ultrafox	+ E S	1	1	1	1
Joshua 1	+ 0 0	1	0	0	1	V Kill 1	+ D 0	1	1	0	1
Joshua 2	+ 0 0	1	0	0	1	V Kill 2	+ D 0	1	0	0	1
Julie ( Tick )	+ 0 0	1	0	0	1	Waft	- 0 0	0	0	0	1
Kauki	+ 0 0	1	0	1	1	Warhawk	+ 0 0	1	1	0	1
KickTag PTR Virus	- 0 0	0	0	0	0	Xeno 1 ( 3260 Bytes )	+ B OF	1	(1)	0	1
Lamer Exterminator II 1	+ A E	1	1	0	1	Xeno 2 ( 22348 Bytes )	+ B OF	1	0	0	1
Lamer Exterminator II 1a	+ A E	1	1	0	1						



Denmark for supplying the names of pirates. This reward is now over \$350 and I hope that will be increased very soon to \$1000.

## Which virus killers can be recommended today?

There are a lot of good virus killers, but also just as many bad ones - and that includes expensive commercial programs, freeware (Public Domain), or shareware programs.

Where it involves virus killers, would I recommend that everyone should send the shareware expenditure because, by and large, the best virus killers today are

# VIRUS KILLERS

shareware programs. Unfortunately this situation could easily cease to be if the time and money the programs require are not appreciated by the users.

If shareware authors are to have the opportunity to kill off the viruses, or limit their spread, I think that the only way is to make it worthwhile for them to create virus killing programs, and that these are continually updated. It is my experience that 'commercial' programs are not updated regularly or, if they are, not very often. I myself have been badly 'burnt' by several expensive virus killer programs which are definitely not worth the money, such as Sherlock, Virusexpert and Virus Infection Protection.

The first was advertised as being able to fix 94 viruses which is rubbish - under test it could only fix 18. VirusX is pretty much the same, although it is freeware. I also sent back the Virus Infection Protection disk to Discovery Software in America for an update, and I have not heard a peep from them, and that was over a year ago! (And you won't now. They have gone out of business. Ed.)

## Better Virus Killers

1. **Zero virus III version 1.12** Entries 112, shareware price, more than 50p. This virus killer can now cope with around 86 boot viruses, but unfortunately only 4 non-boot viruses. It must be considered as one of the best because of its 'learning function', which enables it to learn new boot viruses, in addition to having a hard disk check against non-boot viruses, unfortunately without learning function here. An excellent killer! Can be obtained from the programmer:

**Jonathan Potter**  
PO Box 289  
Goodwood  
SA 5034  
Australia

2. **Master Virus Killer version 2.0.** Shareware price £5. This virus killer knows 105 viruses. The virus killer is being revised very fast! Note that it is a commercial program in France, and German language countries. Can be obtained from the programmer:  
**Xavier Leclercq**  
Vieux Chemin d'Ath no. 12  
7502 Warchin  
Belgium

3. **KDV V version 2.04 1.15.** commercial price £12.50. This virus killer is a must for busy people because the check routine, which searches out both boot and non-boot viruses runs like lightning,

and it has one important detail, a superb analysis routine which finds several unknown viruses. This version recognises 61 viruses. It should be updated by the time you read this to recognize over 100 different viruses. With it come several virus tools of really good quality such as:

1. Hard disk virus brake which effectively prevents viruses from infecting your hard disk.
2. Background virus check, which keeps continual surveillance over stored media such as disks which are changed, RAM and so on.
3. Hard disk check for non-boot viruses.

Can be obtained from the programmer:  
**TUPsoft**  
c/o Mike Hansel  
P.O. Box 1785  
Seven Hills West  
NSW 2147  
Australia

4. **VScan 4.98c** Shareware price £5 (In aid of children with rheumatism \*)
- \* The programmer is badly affected by rheumatism and is currently in hospital in Oslo.

This virus killer is taken partly from the others, but it is a particularly good tool for the hard disk and BBS modem

bases, where I reckon it is an absolute must. In its current form it can only be used from CLI, which I consider an advantage. The virus killer recognises 67 boot viruses and 7 non-boot viruses. However, there is a new version, with over 100 different viruses, available now. Some good features:

1. Hard disk is checked for virus at the same time it is being checked for read/write errors. Crunched files are indicated etc.
2. Protect mode which can hinder non-boot viruses from being able to infect.
3. Brainfile mode which can check for changes in file sizes.
4. Analyse mode which can analyse and indicate new, unknown virus on hard disk or disks.
5. It can run with the new Kickstart 2.0!

Can be obtained from the programmer:  
**Arthur Hagen Johan**  
Scharffensbergsvej 99, apt. 56  
N-0694  
Oslo 6  
Norway

Some good advice, if you are sending money to the above to obtain the latest version, or the program itself, then send £3 more than the cost to cover post and packing, disk etc.

**E.L.S.**

Everyone is welcome to send virus questions, new viruses, or suggestions for the next article about viruses to our mailbox, or to me.

*I will be writing shortly about the latest non-boot viruses and what can be done if you find a really foul virus that no virus killer can handle.*

**Erik Lovendahl Sorensen** can be contacted at:  
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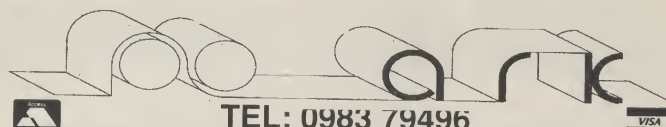
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# C++ THE ONCE AND FUTURE LANGUAGE

## PART TWO

*In the second of the series on his fascination with C++, John Kennedy discovers that because a language is more powerful it does not necessarily become less understandable*

**A**s we discussed last month, C++ is a superset of the C programming language. It builds on C to provide improved type-checking and Object Oriented Programming techniques, all designed to make coding - especially large scale coding - a lot easier and safer.

Perhaps the best way to expose C++ is to compare it with C. After all, if you intend to program in C++ you will need more than just a smidgen of C coding experience.

### Differences between C and C++

Here are some of the major ways in which C++ builds on C. It is not meant to be a comprehensive list, just a taster as to what the new language offers.

#### 1. Comments

Every C programming knows and loves the wonderful /\* and \*/ symbols, used to comment out lines in a program:

```
/* Now update the score */
score++;
if (score>highscore) highscore=score;
```

The C++ program can also use // (two slashes). A comment preceded by the slashes ends with the next new line. It seems a tiny point, but the new comment style is addictive and quickly takes over. It's also the fastest way to spot a C++ program when glancing at a listing.

```
// Myprog version 2
// 15/11/90
```

```
int income; // variable to store amount
payment due
```

Both styles of comments may be mixed in a C++ program, allowing one style to 'comment out' the other.

For example,

```
/* printf("I'm irrelevant");
*/
```

will not do anything, but

```
// /* printf("I was irrelevant");
// */
```

#### 2. Functions

As in the ANSI C standard, functions should be given a prototype. This means that before the main() function, you must inform the compiler of the existence of the function and describe its arguments.

The description of the arguments has now got to be done in great detail. Also the way in which the argument types are declared has been changed.

##### The C way:

```
main()
{
    /* program body */
}
count(a) /* function */
int a;
{
    int b;
    for (b=0;b<a;b++)
        printf("It never rains...\n");
}
```

##### The C++ way:

```
void count(int); // prototype
main()
{
    // program body
}
void count(int a);
{
    for (int b=0;b<a;b++)
        printf("...around here.\n");
}
```

This example also shows a sneaky extra in the for construct. The variable b has been declared just where we need it. In C++, variables can be declared anywhere within a program. If there was a second for-loop in the above example, b would NOT have to be defined again.

#### 3. Enumerations

Enumerations now produce a completely

new data type. This brings C++ more into line with Pascal and Modula-2 and allows programs to be just that little bit more readable. They should replace #define statements when possible. The following example, although of questionable moral value, is surprisingly legible for a piece of C-like code.

// A Sexist Example

```
enum girl_type {
    brunette,
    redhead,
    blonde
};
enum interested {
    very,
    quite,
    soso
};
interested john (girl_type a_girl)
// Function to return the 'interesting factor'
// depending
// on girl type (apologies for the nature of
// this example
// but it's difficult to think them up!)
{
    switch (a_girl) {
        case brunette: return very;break;
        case redhead: return quite;break;
        case blonde: return soso;break;
        default;
    }
}
main()
{
    girl_type pam =brunette;
    if (john(pam)==very) printf("Ask her
out!");
}
```

#### 4. Pass by reference

In C, variables are normally passed into functions by value only. In other words, the function cannot change the value of the variable. To get around this, you must pass a pointer to the variable into the function, and change it by directly writing into its memory location.



C++ allows this passing by reference to be carried out in a slightly neater way. It is especially useful when passing large data structures into a function for there is no overhead required to make a copy of the data: The original is memory locations used.

```
void swap (int &a, int &b)
// ^ ^ the reference operators
{
    int temp=a;
    a=b;
    b=temp;
}
main()
{
    int x=1,y=2;
    swap(x,y);
}
```

## 5. Overloading

Overloading sounds dangerous, but it is just another way to make programs that little bit more legible. If you overload a function, you define it in several different ways. Which function is actually executed depends on the data type used when it is called. The following example will make it clearer.

```
// Overload example
// Prototypes
void my_function(void);
void my_function(int);
void my_function(long);
main()
{
    int x=100;
    long y=10;

    x=my_function(x);
    y=my_function(y);
    my_function();
}

// Function definitions
void my_function(void)
{
    printf("nuffin happens\n");
}

int my_function(int var)
{
    printf("It was an integer!\n");
}

long my_function(long var)
{
    printf("It was looonnnng!\n");
}
```

You can also overload the basic operations (such as addition, subtraction and multiplication) to take into account any new data structures you have defined. For example, you could overload the addition function to deal with complex numbers or matrices.

## 6. Classes

Since C++ was originally called 'C with Classes' it is fairly safe to assume that they form an important addition to C. A 'class' is C++'s version of the black box code module.

Not only does the class describe a program's data structures, but it also includes

all the functions necessary to process them. The standard C 'struct' can be thought of as a class with no functions.

An ideal C++ program would consist totally of classes, with as little code between them as possible: A true modular program.

The keywords 'public' and 'private' are used to control just how much access the rest of the program has to the class's variables and functions. As the names suggest, 'private' data can only be accessed by the class's own functions, whereas 'public' data is available to all. If you want to allow another class access to private data you must make it a 'friend' (yes, really). This leads to the only C++ joke ever: Only friends can touch your private parts.

When you define a variable to be of a previously defined class type, you also

have to initialise its internal variables and so forth (via a 'constructor'). This is to ensure your data is never undefined - a common bug in a program. Likewise, you have the option to 'tidy up' after a class variable goes out of scope (via a 'destructor'). This is useful if you have taken some memory from the system heap to play with: As soon as you program does not need it any more, it automatically gives it back.

A constructor is defined like any other function except it has the same name as the class itself. Similarly, the destructor has the same name but preceded with a tilde (~).

It is hard to think up a meaningful class example which does not take up several pages of code, so think of the following as

a very brief skeleton of a program.

```
// TV Stock Control

class tv {
    // These lines defaults to 'private'
    int lines;           // A variable
public:
    tv();               // The 'constructor' prototype
    ~tv();              // The 'destructor' prototype
    int price;          // A variable
    void print_price(); // A function
}

// Function definitions
tv::tv()               // The constructor
{
    lines=625;
    price=150;
    printf("Just defined a TV set\n");
}

tv::~~tv()             // The destructor
{
    printf("Just undefined a TV set\n");
    // nothing much to do in this instance
}

void tv::print_price()
{
    printf("Price of the TV is %d\n",price);
}

main()
{
    tv sany;
    tv sonyo;
    tv JCV;
    sany.print_price();
    sonyo.print_price();
    JCV.print_price();
    // Not that 'price' for each TV
    // *can* be altered and accessed
    // here, but 'lines' *cannot* be
    // because 'lines' is private.
}
```

## Conclusion

In the same way that C has taken over from languages such as BASIC and COBOL in commercial programming environments, C++ will take over from C.

C++ is a new language, but unique in that a C++ compiler will compile C code as well. The best of all possible worlds. The best (if not only) environment on the Amiga comes from Lattice (now S.A.S.), and as mentioned in more detail last month.

Alternatively, you may like to consider using an IBM-PC compatible compiler (such as the highly praised package from Borland) on your Amiga by making use of the several hardware emulators currently on the market. The PC compilers are half the price of their Amiga counterpart, but will, of course, run a great deal more slowly under emulation.

By learning C++ on the Amiga, you will not only be equipping yourself with the best way to control Intuition, but possibly fitting yourself for some highly paid real-world programming jobs!

J.K.



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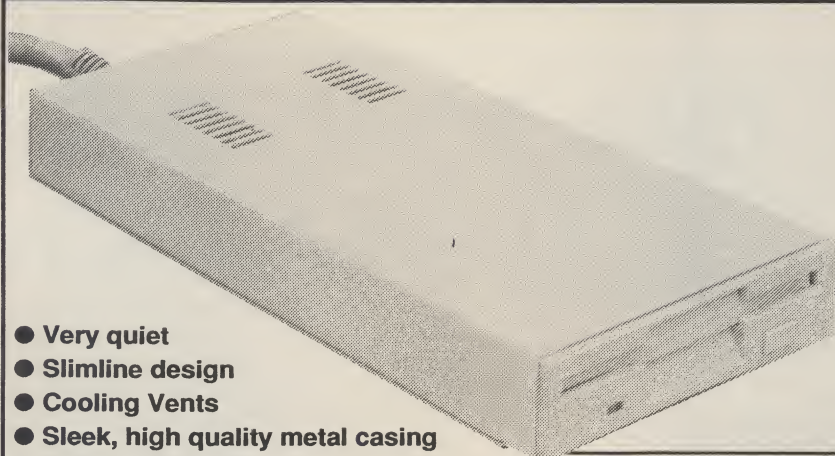
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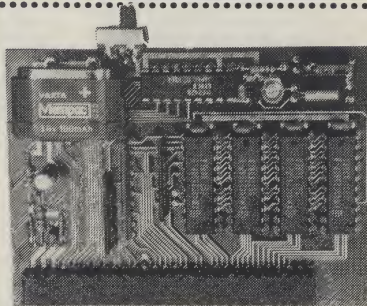
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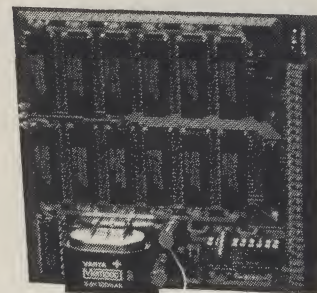
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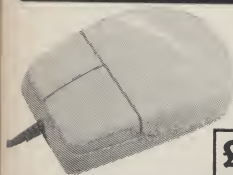
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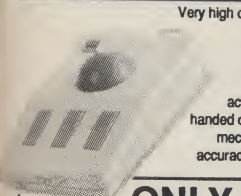
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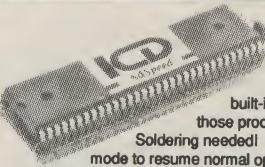
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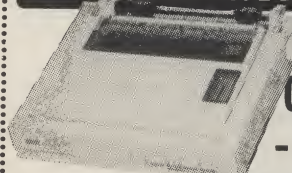
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# AUI-SPELL

## part 3

*In this instalment of our very own D.I.Y. computer project, Paul Overaa introduces the idea of a 'sort tree'...*

Last month, I sketched out the C and assembly language code for stripping words from a text file and dumping them back at a CLI. This provided a half-way stage that enabled me to check the word stripping part of the assembly language patch. The next part is a bit more complex - instead of sending words back to the CLI, the idea is to build a set of descriptors which allow all of the words present in the text buffer to be identified.

Each word identified in the text is going to be logged using a 16 byte block of memory which contains four fields...

	4 Bytes Right Descendant
	4 Bytes Left Descendant
	4 Byte Address Pointer to start of the word
Descriptor base →	4 Byte Count of number of characters in the word

Four fields are present: A character count, a word start address, and two fields labelled as 'left descendant' and 'right descendant'. As words are identified we know how many characters are present in the word and the address of the first character. It is easy enough therefore to place those values into a specified memory block. The descendant fields are an integral part of some important tree handling techniques. The data structure I have chosen to use is just a simple binary sort tree. In the following parts, we will concentrate on an explanation of the use of these structures but for now we shall sketch out some basic ideas...

### Sort Trees

Stacks, Lists, Tables or Arrays are examples of data structures that are commonly used by programmers. Even novices soon acquire a proficiency and indeed a "mental picture" of these concepts and the way in which they can be used to

advantage.

"Trees" are another very common way of describing and organising data and they have numerous possible applications. Trees get less exposure in the computing magazines than other data structures, primarily because they are considered to be complex. This, to a certain extent, is a misconception because in many cases the use of tree structures can actually simplify programs rather than complicate them.

Computing textbooks are the proper place to get detailed descriptions of tree

tant point is that we are showing how the items in the tree are related. In a computing sense the data structure called a tree is similar and the terminology used reflects this.

Another common "non-computing" example of a tree structure is a management organisation chart. Figure 2 (Top of page 000) is part of a typical example.

Again the purpose is to show relations, this time between the various jobs or orders of responsibility within a company.

If you look again at figure 2 you will notice several things. To start with each item on the chart is related to only one item above it. We say that each item has only one parent. ie Foreman 1 is responsible only to the Production Team Leader. Similarly the Production Team Leader is only responsible to the Works Manager. Note however that in our definition there is no such restriction on the number of "descendants" that an item

may have. The Production Team Leader may have many Foremen who have to report directly to him.

In general then, a structure can be classed as a Tree if each item has only one Parent even though it may have none, one, or many "descendants". The exception to this is the very first item in the tree. Why? It is because although it may have descendants it has no parent. The first item is actually given a special name... the "Root".

Before considering how these structures can be used in a computing sense we need one more piece of terminology. Each item in a tree is called a "node". Thus the first item is called the "Root Node". For discussion purposes it is helpful to number nodes so that individual items can be identified so I will also be calling the root node 'Node 1' on occasion.

If you think about it - one way of describing a "list" is quite simply that it is "a tree structure in which each parent is allowed only one descendant". The simplest type of tree structure, other than a list, is one

theory but, since we shall be making lot of use of binary trees, a quick guided tour of the basic concepts is probably in order...

All of you will know what a "family tree" looks like and will also know that by convention they are drawn upside down. i.e. parents are shown above their descendants. Figure 1 gives the general idea...

In drawing a family tree we are attempting to describe the relations between the parents, their children, the descendants of those children and so on. The impor-

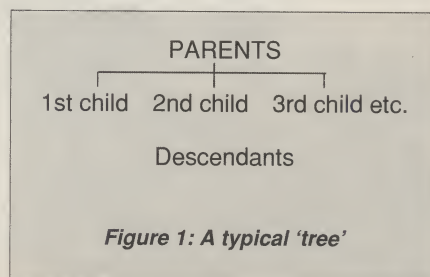


Figure 1: A typical 'tree'



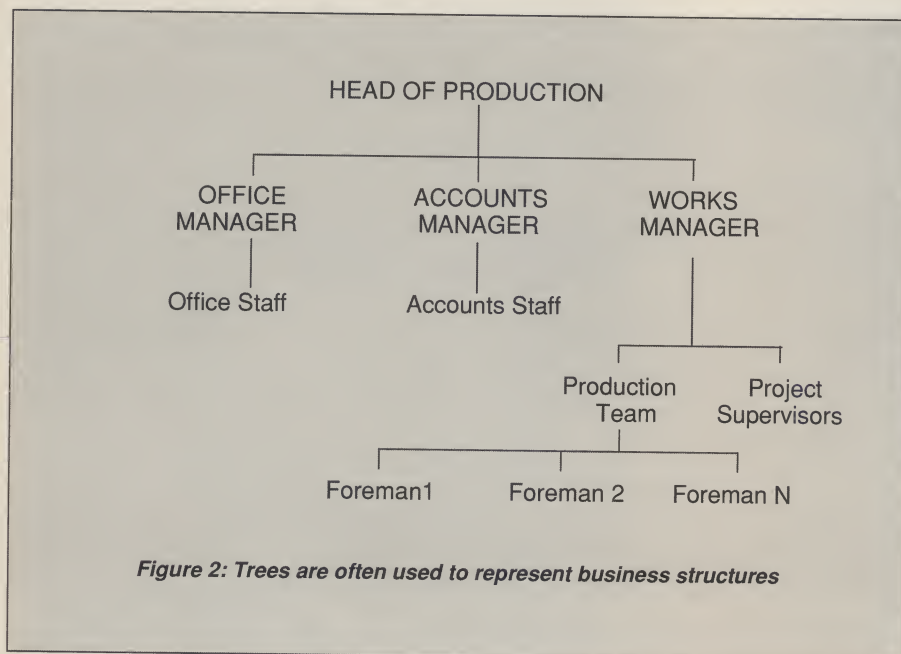


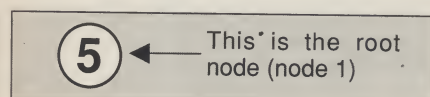
Figure 2: Trees are often used to represent business structures

in which we restrict the number of descendants that a particular node may have, to a maximum of two.

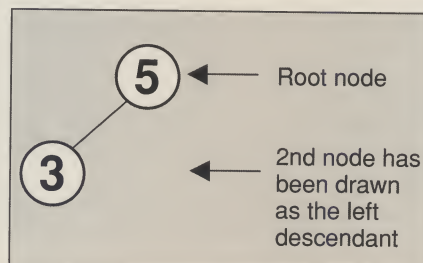
Such an arrangement is called a "Binary Tree" and these turn out to be very useful indeed. One application of Binary Trees is in the sorting and searching of large amounts of data. Since these applications probably occupy more computer time than any other single application it is little wonder that a vast amount of work has gone into ways of creating very efficient routines. The complexity of these published standard solutions, many developed and refined over decades, tends to cloud the basics and make it extremely difficult for newcomers to come to terms with the more fundamental aspects involved.

Consider the list of numbers 5, 3, 1, 6 and 4 in left to right order. We are going to place them onto a tree structure according to the following rules: If the number being added is "less than or equal to the value of the node being examined" then we shall move to the left descendant. If the number being added is "greater than the value of the node being examined" then we shall move to the right descendant. When no suitable descendant exists then the number being added to the tree will be inserted in that vacant descendant position.

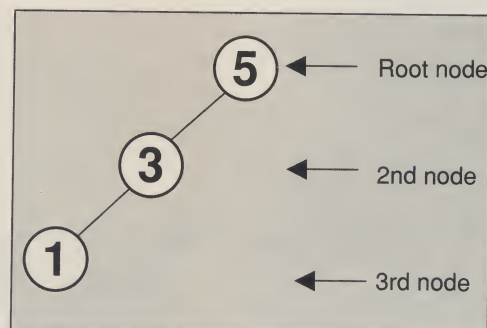
The first number is 5 and this becomes the root node...



The next number in the list is 3. Since the tree has only one item on it and therefore has no descendants we ask... is 3 less than or equal to 5? Since it is, 3 now gets drawn as the left descendant of the root node like this...

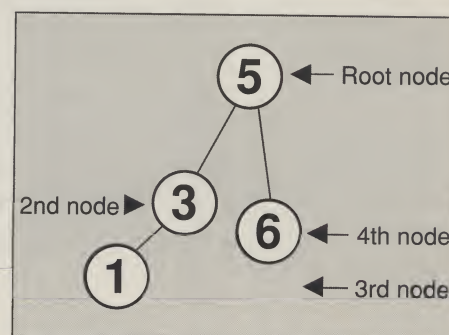


The third item in the list is the number 1. To place this in its correct position we proceed as follows: We compare the new entry, number 1, with the root node. Since 1 is less than the value of the root we proceed to examine the left descendant of the root node which, in this example, is node number 2 the second item that was added to the tree. We ask... is the value of the new entry less than or equal to the value of node number 2? It is, so now the idea is to see if node 2 has a left descendant. It hasn't and so the new entry, the number 1, is placed on the tree in this position...



The fourth item on the list is the number 6. We do exactly the same as before and compare this value with the value of the root node. In this case the value is greater than that of the root node value. Since there is not a right descendant of our root node at present we proceed by making

our fourth new entry the right descendant as follows...



If you are finding these ideas difficult you should make quite sure that you are clear about the terminology (I can remember this causing problems myself in the early days). The numbering of the nodes themselves is dependant on the order that we are placing the items onto the tree. When we compare values, in order to ascertain where particular items should be placed, we are interested in the actual VALUE that a particular node will have.

The next item in the example list is the number 4. To place it on the tree we proceed as follows: We compare the number 4 to the value of the first node in our tree. Since 4 is less than 5 we move to the left descendant of the first node. This is node number 2 which has a value of 3. We ask... is 4 less than or equal to 3? Obviously not. So, seeing that there is not a right descendant of this node, we complete our tree by making the last entry the right descendant of node number 2...

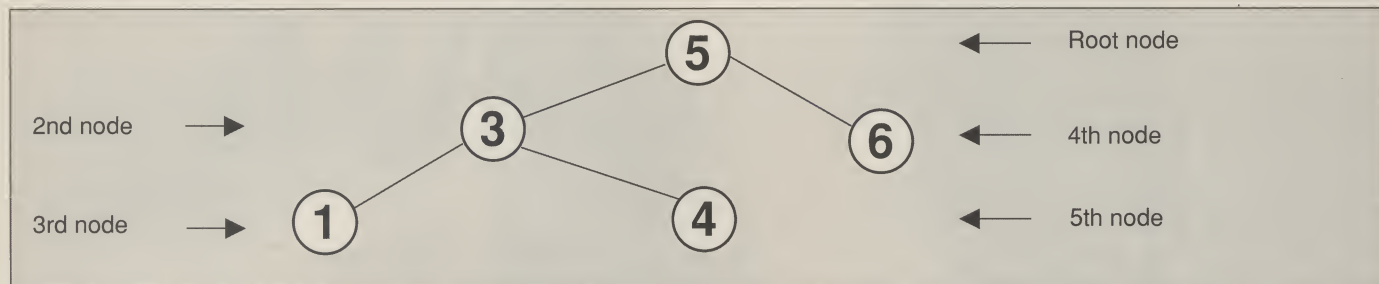
That's it: We have now created a "sort tree". At a first glance you may well be wondering what use such a structure can be. It can be noticed that the leftmost item on the tree is in fact the one with the lowest value. It is also apparent that the rightmost item is in fact the one with the largest value. Other than that there does not appear to be anything special about the arrangement.

We shall deal with the benefits next month but for now two points should be noted: Firstly, it was purely an arbitrary decision to make the "less than or equal to" decision correspond to the "left descendants" in the tree. We could equally have used the reverse convention. Secondly we could have split the decision part into "less than" and "equal to or greater than". Again it was purely arbitrary. What was important however was that the way we split the decision part enabled us to classify any incoming items into only one of two types. Thus there was never any doubt about the exact position that an incoming item would occupy on an existing tree.

If these ideas are new to you then just practice with them a bit. Try and draw a sort tree for the following list of seven words:

**ENGLAND,  
AMERICA,**

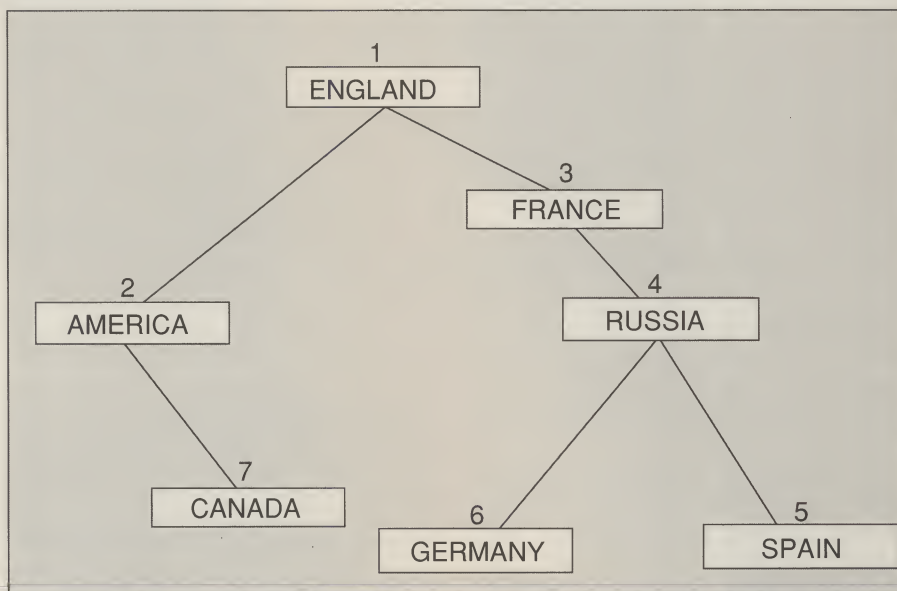




**FRANCE,  
RUSSIA,  
SPAIN,  
GERMANY and  
CANADA**

Use exactly the same rules as we did before only apply them to the alphabetical rather than numeric ordering. You should end up with the following tree structure...

P.A.O.



Next month we will list the code, as it was far too large to include in this issue... It will be possible for you to obtain a disk containing the listing. See next month's *AUI* for details.

## START COMPUTER SYSTEMS

0  
9  
1  
5  
6  
4  
1  
4  
0  
0

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Greetings to Red Devil, Jez/Silents? Frantic/Goldfire, Robotron/Silents, Tantalus/Toxic, Leroy and all others  
Dan/Anarchy (ring me) Mark, Bri, Joe, Windy, and any other lunatics out there in Amigoland also a megagreet  
to all the phreaks we met at the Commodore show ... or will meet as this is being written before the show!

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423 Cool Fridge - Nice plasma FX and copper things  
314 Mirage Megademo - Big 1 Meg demo, very nice!  
254 Tomsoft trip to mars - We like it! nice vector demo  
252/253 Budbrain Megademo - Superb demos and music  
251 Silents Megademo • Brilliant!  
164 Scoopex Mental Hangover - Still as impressive as ever!  
136 Fraxlon Horror - Totally crap dont buy it!  
133 Bacteria - Crusaders Mega music disk - Get it  
499 Stabby Music - Oh wow its amazing!  
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424 Sound of Silents - Brilliant Brilliant Brilliant. OK?  
245 Scoopex Beast music - All the music from the game  
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334 Darkstar Utis 2 - If you expect me to list all the utilities on  
130 Darkstar Utis 3 - these diskthen forget it! Just buy one  
333 Darkstar Utis 4 - and ring Red devil up and ask him! (Dont)  
330 PE Utis 5 - More utils by Mr.Devil, all I can say is they are all  
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455 Agatron 15 - 3 Brilliant anims by Tobias all in 512K!  
452 Enterprise leaving dock - Quite Amazing! 1Meg  
212 StarTrek Anim - GreatTobias anims in 512K  
493 Vax Pics - Superb picture created on a Vax computer  
484 ColorCycles - Brilliant slideshow of color cycling  
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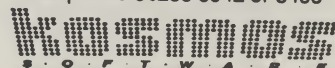
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# Harmoni MIDI Sequencer

**Paul Overaa tests The Disc Company's new simple-to-use MIDI sequencer...**

One of the latest pieces of Amiga MIDI/music software to hit the UK is a new sequencer called Harmoni. It comes from the Disc Company and it is a fully-fledged MIDI package that will run on anything from an unexpanded A500 upwards.

Right from the start Harmoni makes a good impression... the displays themselves look good and it is clear, when you use the program, that a lot of effort has gone into the programming. Harmoni uses a click/drag mechanism for many of its gadgets — here is an example of how it works... for recording there is both a visual and an audio metronome available and as well as using the internal speaker you can opt for sending MIDI notes. The MIDI note option lets you select note value, MIDI channel and note velocity and if, for instance, you click on the velocity gadget (keeping the left mouse button held down) then the numerical velocity value will change as you move the mouse up or down.

Another plus is that the 232 page manual includes some good 'easy-start' material so you can actually start doing something useful with the sequencer from the moment you first load it. (After the preliminary tutorials come the usual reference sec-

tions which deal systematically with the sequencer's capabilities in detail.)

More evidence of the 'user friendly' aspects of the program are seen with

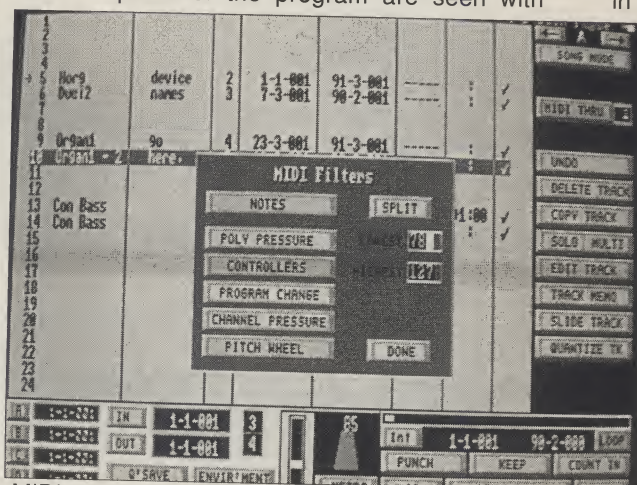
also be used to turn off the 'undo buffers' facility, thereby providing extra memory for holding MIDI data.

In use Harmoni is conceptually simple and is based on two modes: in sequence mode you use tape-deck type controls to create multi-track sequences; in song mode you can combine those sequences to form songs.

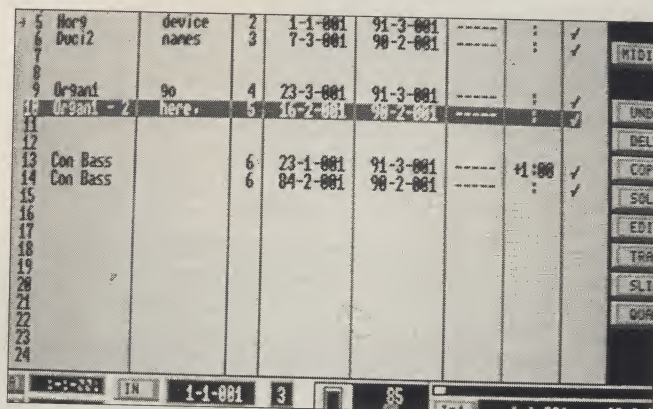
## Recording with Harmoni

Down in the bottom right are familiar-looking run, fast-forward and rewind type tape-deck controls together with gadgets for looping, punch-in, count-in etc. To the left of these are a selection of registers and buttons for auto-locating, 'quick saving' (rapid file-saving using existing path/names without file requesters) and so forth.

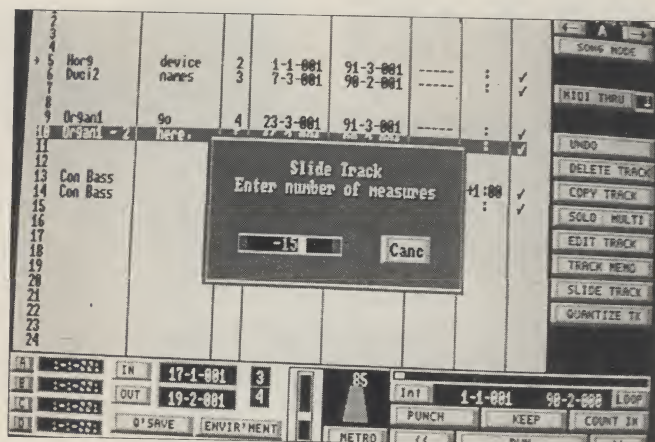
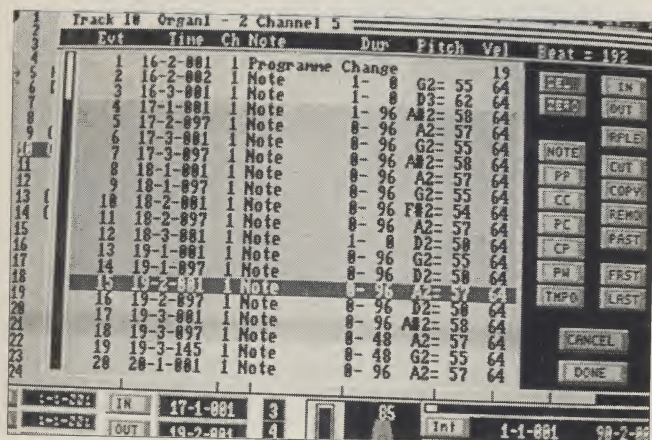
Above this latter section is the track display which provides track numbers, device, channel, start/end times, edit history summary and mute status info. 24 tracks are available for creating a sequence and, memory permitting, up to 72 (54 for NTSC version) separate sequences can be worked on at any one time. On the right of the track display is another bank of gadgets which are used for mode switching, editing, track copying etc.



Harmoni's 'Environment Settings'. These let you give names to particular MIDI channels (to reflect the synthesizers/sound-modules you might be using), let you choose how times will be displayed and even select whether files are to be automatically backed-up or not. Another option lets you decide whether 'safety net' requesters are to be displayed before potentially destructive edits are performed. If working space gets tight, which can happen if you are running on a 512K machine, the environment settings can







All of these gadgets, when combined with the equally numerous pull down menu functions result, as usual, in a host of typical sequencer goodies being made available . . . track soloing and muting, looping, regional and global editing, MIDI filtering, quantizing, arpeggiation, pitch-inversion and track reversal effects, doubling/time-halving, punch-in/punch-out, track merging and splitting by channel separation. Harmoni lets you quantize both start-times and durations and there is handy for creating echo effects and shifting snare-drum parts.

The MIDI Thru gadget, which lets you change the channel of the data coming into the sequencer, is useful when you are using a single MIDI source for creating a selection of parts on different channels, eg using one synth for building bass, drum, and keyboard parts. Individual tracks can, incidentally, be locked against transposition (a necessary protection for drum notes). Timing control can be either by internal clock or external MIDI-clock/SPP commands and first MIDI-event starting is also allowed. Harmoni's recording facilities also allow SYSEX data to be transmitted and received.

## Editing

Most of the event editor window is taken up with the events list itself. Each MIDI event uses one line in the list and shows an event number, a time, the MIDI channel, the event type and the associated values. To change a value you just select the field and click/drag to produce a new value. Notes, controllers, channel pressure, program change, pitch-wheel etc., are all identified and Harmoni also allows its own Tempo events to be inserted into the lists.

The program offers the usual array of copy/delete/paste/append type options together with a few interesting higher-powered facilities. Harmoni's filter options deserve a special mention. It is possible to filter out controllers, program changes, channel pressure, pitch-wheel events and even notes which lie outside of a

user-defined range. Now because Harmoni records everything in a record buffer rather than directly into track space it becomes possible to do some interesting filter tricks. You could, for instance, record a raw keyboard track (controllers, pitch-wheel data, notes etc.) then adjust the filters for collecting only the controller data. When you select the 'keep' option, a copy of the filtered record buffer (i.e. just the controller data) will then be transferred to the appropriate track. You can

**"Another plus is that the 232 page manual includes some good 'easy-start' material so you can actually start doing something useful with the sequencer from the moment you first load it"**

then re-set the filter and use the 'keep' option again to transfer some other part of the data (e.g. the real notes) to another track. It is easy to use and very effective!

There are options for velocity scaling, for controller zeroing, for adding track memos and for removing those short events which are often caused by unintentionally brushing against unwanted keys as you play a keyboard. Files can be saved as Harmoni files, as SMUS files

and as Standard MIDI Files.

Other nice touches include the display of single-letter track history details. This gives a visual indication of which tracks have been changed and how . . . Q means that a track has been quantized, S signifies a time slip, E means that the track has been edited and so on.

Once the individual sequences of a song are complete you can swap to song mode and link them together specifying repeats and transposition factors. Song mode is straightforward to use and very useful.

## Last Words

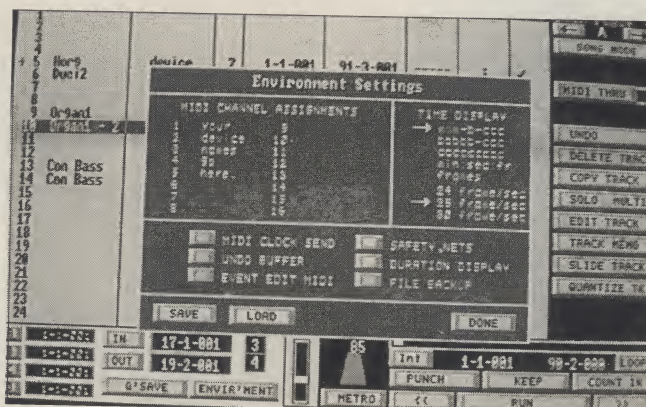
I liked Harmoni . . . it is a nicely designed, useful little sequencer which contains most of the important features necessary for the serious musician. OK, there are some areas, especially the event editing facilities, where Harmoni is not as easy to use as £250+ heavyweight sequencer programs but here is the surprise . . . Harmoni costs just £49.95!

Now at this price I am definitely not going to knock it — to get 90% of the most useful facilities offered by the expensive heavyweight programs for around 20% of the cost makes, in my eyes at least, Harmoni a very good buy indeed. To be able to read and write MIDI Files is another very important plus because it means that, should you ever grow out of this sequencer and need to move to one of the more expensive offerings you will be able to move your valuable sequence data to a new environment very easily.

In short then . . . Harmoni not only works but is capable of serious, although not professional, use. It includes a surprising number of quite advanced features and being competitively priced I suspect, and hope, that it will do very well indeed.

P.A.O.

**Price:** £49.95  
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# Macro68 Assembler

**Mike Nelson test drives a new programming aid that covers the recent moves up the Amiga ladder. . .**

**F**or several years now, the assembler of choice when writing machine code for the Amiga has probably been Devpac from Hisoft, but the advent of newer processors and support chips in the Motorola family has paved the way for others like Macro68. The 68020, its fast younger brother the 68030 and the powerful baby of the family, the 68040, possess expanded instruction sets, which have necessitated the introduction of a new command syntax, and hence assemblers must also be upgraded to remain compatible. The 68881/2 chips are now becoming popular in add-on boards to assist the number-crunching of ray tracing programs, for instance, and the A3000 will support the Memory Management Unit (68851), so if

***"The assembler is almost totally user definable, so you can design your own personal programming environment"***

programmers are to take advantage of this juicy hardware, they need the support of decent assemblers and compilers. Devpac does not yet support the new chips, unless you fork out nearly £200 for the Developer version.

Digisoft are another company from down under who are not particularly well-known around these parts, but they date back to the early days of the A1000 and their software reflects this experience. Macro68 is a fully-fledged assembler system, comprising the assembler itself, all the "include" files containing the definitions needed for talking to ROM routines, various useful support, and a handful of examples for you to take apart and savour. There is no custom editor (save for Memacs which everyone already has, anyway) and the weak link

is the lack of a debugging system.

The assembler is almost totally user definable, so you can design your own personal programming environment by altering a file full of options and re-assembling it. You are able to alter definitions of various commands or messages, register names and even set up a custom "HELP!" message format, should you get stuck.

Installation of Macro68 onto a hard disk is a pretty straightforward affair: just click the button and answer all the questions to find all the necessary files sitting in the appropriate directories in "your wish is my command" mode (well it is still the pantomime season!)

The assembler is very swift and may be kicked into life either from the CLI or via a Workbench front end. The latter is not particularly effective, however, but that should not worry seasoned programmers who think that desk tops are places to rest a keyboard, a cup of coffee, and will not have much truck with fancy icon things anyway. The usual sort of command syntax is employed, along the lines of "macro68 filename [list of options]", and the options possible are extensive so I won't go into details. Essentially they control how the assembly process is carried out, the sort of errors reported, the number tolerated before giving up, and so on.

The assembler options above are augmented by a pile of directives which are included as part of the source file being "done", and these are very powerful indeed. Users of other assemblers will be at home with the controls for altering the listing generated, macro definitions (hence the name, I suppose), and data storage, but this is only the beginning. Macro68 has over a hundred directives so I can only give you a taste of them. But it is these options which really make the program jump up and down for your attention.

You can tailor the assembly to the target processor, instructing it to accept 68030 or 68882 instructions and therefore trap any code over which a 68000 would get

upset. Another useful feature is that Macro68 will assemble Copper lists, so you too can create those scrolling rainbow demos without the heartache of writing code in binary. A nice directive is "EXEOBJ" which signals the generation of an executable object file, neatly side-stepping the linker phase of programming so things are speeded up significantly. You can, however, create linker files for Blink to mix in with code originally written in other languages like C or Modula 2. The output from the assembler can be honed in a variety of ways for cross referencing and errors can be sent to specific files for later analysis.

Conditional assembly is catered for with a barrage of directives ensuring "only do this bit if these criteria are met",

***"If you guys down under can produce 'Neighbours', then a tidy debugger should not prove too much of a problem"***

so your code can be quite sophisticated. Debugging is greatly assisted by such commands.

The "miscellaneous" category of directives has some interesting inclusions like a repeat facility, useful in generating tables of data at assembly-time without you having to type them all in. Including a binary file is a convenient way of encoding a sprite definition or sound sample, and the INCBIN directive serves this purpose. The Amiga system forces certain programming idiosyncracies upon assembler code, mainly because the 68000 is not the only chip capable of altering memory locations. The Direct Memory Access (DMA) will confuse the system if some instructions, permissible on other 68000-based machines, are attempted, and we all know that means a



Guru, so Macro68 will check for these instructions and inform you of their presence. Like most features, this can be disabled if you are writing code for one of these other machines which do not enjoy the benefits of DMA.

The inter-task message system called ARexx is supported by Macro68, meaning

***"The Amiga system forces certain programming idiosyncracies upon assembler code"***

that many of its functions can be controlled from a similarly-equipped editor like CygnusED (see AUI December). This is another way of controlling what the assembler does and a welcome sight.

I mentioned the new syntax for 68000 assembly language earlier on and it is worth taking a quick look at the main differences. In effect these are just a few altered brackets and general tightening of the size extensions, usually because of conflicts between naughty 68000 code and the opcodes in the coprocessor chips

to which many programmers have no access. The ".S" extension is now reserved for use in the 68881/2 chips and so Macro68 can replace all occurrences of this with the correct ".B" suffix. Opcodes like MULS, DIVS and CHK now require a size extension of either ".W" or ".L".

The manual lets the side down slightly, mainly because the presentation is not up to the high standard of the assembler. The information is reasonable enough (though the spelling is suspect in places, e.g. "interperator"), but the print size is depressingly small and the book itself all but refuses to lie down and be read, being like a Bullworker in terms of springiness. Still, at least those pectorals get stronger by the time you reach the appendix.

The lack of any machine code monitor type of program significantly limits the package, and I really hope that Digisoft amend this omission as I feel that without any real debugging aids, Macro68 will always live in the shadow of its Hisoft rival, despite being much more up to date. If you guys down under can produce "Neighbours", then a tidy debugger should not prove too much of a problem.

In conclusion, Macro68 is a very powerful assembler which provides a good upgrade alternative to the ubiqui-

***"Another useful feature is that Macro68 will assemble Copper lists, so you too can create those scrolling rainbow demos without the heartache of writing code in binary."***

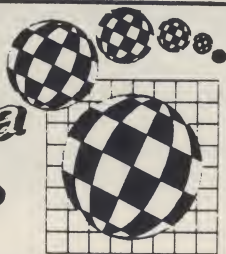
tous Devpac, with the caveat about the missing monitor. If this could be included then Digisoft should be onto a winner, but for me and all my foul-ups, a debugger is worth its weight in silicon.

M.N.

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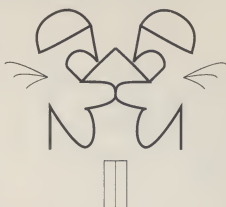
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# WEST OF EDEN - FRANK ROSE

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### *The end of innocence at Apple Computer*

**W**hy should Amiga users be interested in reading this book about Apple? Well, the significance of the story behind it would suggest that anyone involved in the computer industry could benefit from reading it. It would also seem to appeal to people interested in recent technological history.

However, the book is worthy of reaching a far wider audience for it presents an intriguing story, a true story, mixing corporate skulduggery with spaced out idealism and "insanely brilliant" technological innovation, to create a fascinating picture of a real world which has no less excitement than that of a novel.

Steven Jobs and Steve Wozniak created Apple and from Apple and the Macintosh, the book suggests, came Personal Computing. Apple grew to become a billion-dollar corporation which changed millions of lives and transformed computing in the business world. And indeed the company is still a fundamental influence in popular technology, especially with its recent entry into the lower price range with the Mac Classic computer, stepping out of the prestige sector to compete for Commodore's Amiga level market.

Cupertino, California, lies in the heart of what was to become Silicon Valley. This was the home of Apple which by 1983, six years after its inception occupied six buildings.

Apple's founders were "true kids of the valley - college dropouts who plugged state-of-the-art semi-conductors into a board, wired them together and created a rudimentary computer that almost anyone could afford". Cupertino is the kind of place where anything electronic seems possible but that period also saw the counter-culture of free love, psychedelic experiences and flower power spring up all over and especially in California.

Wozniak and Jobs grew up there and met through a mutual interest in electronics. In a garage workshop, they cadged the components required to build a tiny computer. Jobs suggested going into business but not before he had been to India and become involved in Gurus, acid and Zen.

After experiencing dysentery, he went back to California disillusioned, broke and exhausted and began to suspect that enlightenment might come through electronics rather than philosophy. He returned

from an apple harvest and suggested they call their operation just that - 'Apple'. He thought of the apple as the perfect fruit - "It has a high nutritional content; it comes in a nice package and doesn't damage easily" - and he wanted Apple to be the perfect company.

At first Wozniak and Jobs assembled computers in a bedroom, selling the product for the odd sum of \$666.66. They identified themselves with a curiously romantic logo that showed Isaac Newton under an apple tree with the caption lifted from Wordsworth... 'Newton - A Mind Forever Voyaging through Strange Seas of Thought...Alone'

The machines were built with just 4 kilobytes of memory and serious computer scientists thought them too trivial to bother with. They had been using computers with 64 Kilobytes of memory for years. But undeterred, Wozniak struggled to develop a computer with its own keyboard and able to display colour on a TV screen while Jobs worked to launch the Company.

"One thing nobody had counted on was the runaway market for tiny hobbyist computers that developed in the mid-seventies. They had assumed that no-one would want a personal computer until the state-of-the-art in semiconductors made them powerful enough to be useful. But by 1977, Apple, Commodore and Radio Shack were selling computers that seemed little more than toys, but people were buying them at an astonishing rate."

How the company was financed, built up and managed, together with inventive marketing techniques is recorded as the story unfolds. Almost any Amiga user, in whose lifetime the Apple sage has undoubtedly taken place, should be able to remember and identify with the developments of this era.

The fine details fit into the better known events of the technological age. Personal computers in general and Apple in particular, have been extensively covered in news media, but understanding and gaining insight into the people whose inspiration built the company up completes the story.

What Jobs and Wozniak achieved through passionate and fierce commitment, as Rose eloquently acknowledges, and the book testifies, has widened all our horizons. The creation of Apple is of out-

standing interest and Rose encompasses and champions their work in an impressively marshalled array of facts, proving their technological competence was combined with a true understanding of future public demand which enabled them to capture a corner of the market hitherto untapped.

Despite some ups and downs, Apple, like Commodore, is still a major player in the world computer contest. But today, neither Jobs nor Wozniak is associated with the company they founded.

At about the same time, coincidentally, in 1986, two ex-Pepsi Cola Sales Vice Presidents, John Sculley and Tom Rattigan, took over the management of Apple and Commodore respectively. Each later attempted a coup to oust his boss. Sculley was successful and Jobs left to form his own company to develop yet another futuristic computer product, NEXT. Rattigan lost out to CBM's controlling shareholder and chairman, Irving Gould.

Apart from the Amiga in Europe, CBM has undoubtedly been less successful than Apple since then with a turnover of less than half

of Apple's \$3 billion. But who knows what would have happened if Jobs had remained to lead Apple? For West of Eden begs the question, "Is there really a time in the course of the growth of a company when the innovators should or must step aside and let the organisation men, the marketeers, the accountants and the lawyers take over? The answer might provide a sobering thought for any would-be inventor or entrepreneur..."

Rose's account of the creation, development and corporate revolutions of one of the technological success stories of our age is extremely readable and interesting. It leaves the reader better equipped to understand the computer he uses today - whatever the make - which can only enhance its use and enjoyment.

*M.W.*

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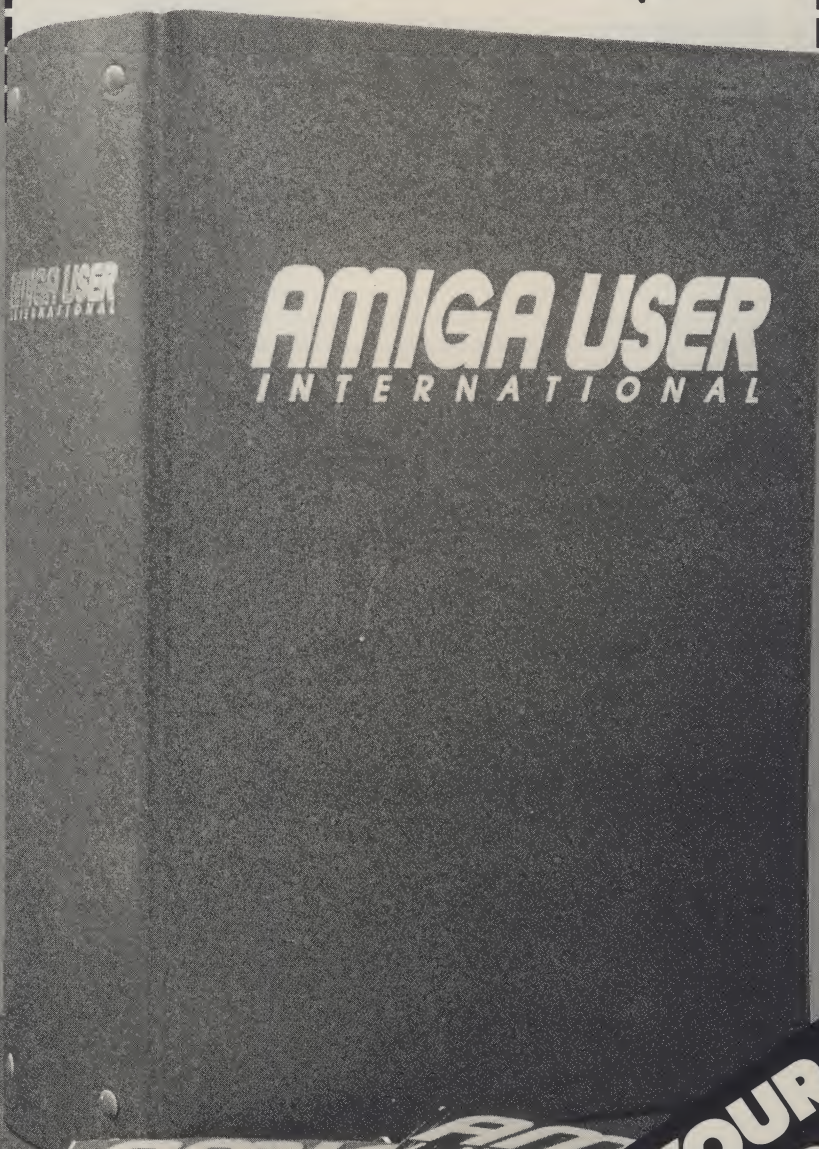
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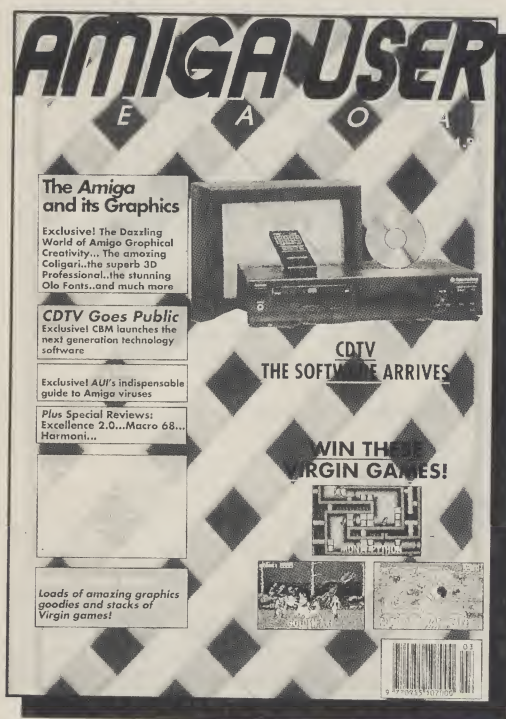
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# AMIGA IN THE CLASSROOM

## COMMODORE REGIONAL SUPPORT EXECUTIVES

*Commodore's Amiga has been breaking new ground in the classroom. Gareth Earnshaw spoke candidly, one of Commodore's appointed Regional Support Executives with AUI*

**T**he Acorn BBC, and now the Archimedes, have been the standard educational computer equipment in many schools across Britain. This stems from the BBC contract in the early 80's which gave the stamp of approval for the Acorn machines in education. The BBC gave the contract to Acorn over inferior machines at the time. Machines such as the Sinclair Spectrum, and especially the Commodore 64 were superior. Since the launch of the Amiga, its superior graphics, music, and operating system have made the BBC obsolete, and when matched with the Archimedes the price-for-quality ratio falls clearly in the Amigas favour. The Amiga is also the most popular leisure computer in Britain

and many more school children have home access to them than the Acorn machines, which has an immediate advantage in their familiarity and ease of use.

So why are teachers not equipping their schools with these superior, less expensive, and more popular (with children too) Amigas?

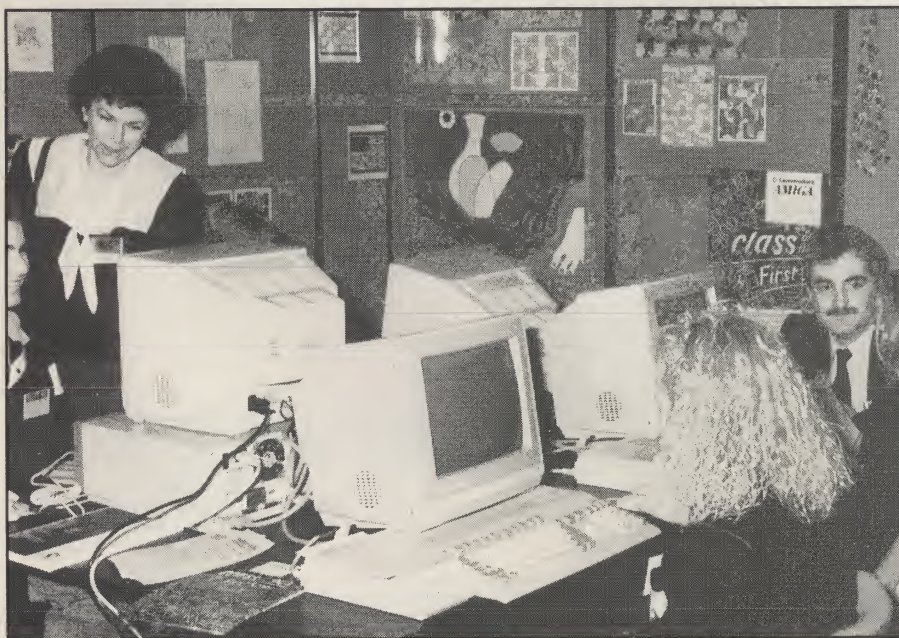
The problem from the teachers' viewpoint, says Gareth Earnshaw, is that they do not realise what the Amiga can do and what support they can get to do the things that THEY want it to do. Another consideration is whether they will receive support if things go wrong, and some are afraid of possessing a system which will become difficult to get to grips with - a kind of educational technofear.

To help teachers understand the simplicity and talents of the Amiga, for the past 15 months Commodore have been giving free demonstrations, guidance, and support to teachers, instructors and advisors on the use of the Amiga in education. To administer this nationwide support Commodore have set up a body of instructors and demonstrators known as Regional Support Executives (RSE).

These executives are employed full-time by Commodore UK to demonstrate to teachers, in their own schools, what the Amiga can do for them, and provide after-installation support and training. The biggest obstacle the RSEs encounter is not the technicalities of the computer but that teachers are sometimes unwilling to make appointments, probably because they are nervous of being swamped in technical jargon. However, when you consider that all of the RS executives are ex-teachers, can speak teacher-talk, and can understand the problems that teachers face, you can see that this fear is unnecessary.

Gareth Earnshaw emphasized that he and his colleagues are not salesmen - He told AUI "The Amiga sells itself. Once the teacher sees what the Amiga can do, what it can do for them, and realises that if they ever need help we are but a phone call away and will come to the school, they soon want one, or more..."

The initial demonstrations are conducted at the convenience of teachers wishing to know more about the Amiga in education. The RSE will go through the two current Commodore educational packs, and the software associated with them. Teachers are free to ask questions on any topic, for example "Can it do this, because I need .....", and "What can it do in the field of ....." etc..





When the Amiga is installed in the school, the RSE's go through several training sessions with the individual teachers to give them enough confidence to know what they are doing. The after-installation support and training sessions provided by the RSE are just as important to the teacher as are the initial demonstrations.

A stumbling block in the programme is the stalwart supporters of the Acorn BBC and Archimedes machines, most of whom are advisors, rather than teachers. But as Gareth says "I feel that the more I have been involved with the programme, the more confident I have become on countering their prejudices, simply due to working with teachers who have used both Acorn and Amigas and are full of praise of the latter." This is, of course, misleading teachers into believing that the BBC is a better machine or that the Archimedes is better value, even for its higher price than the Amiga it may even cause some to be uninterested in talking to RSE's with visions of them as shifty salesmen selling a bad product. Yet the amiga is now a worldwide success with more than 2 million sold with an increasing number in the classroom. There is no doubt that there is a lack of support from the authorities when it comes

to training and advising teachers in the use of computers in education. Teachers often have to travel

up to 30 miles to a regional computer centre and many simply don't have the time. What Commodore has done is introduced their own regional support for teachers and executives will visit the school, organise site training courses, and be on hand via the telephone. This is all free along with the initial purchase of the Amiga.

The Amiga is changing the way education is being taught and Gareth Earnshaw, as an ex-teacher, believes it is very much for the better. Art, design, music, and drama, are creating a new departmental structure - The Performing Arts. Subjects which were a dying part of the curriculum such as music, are being revitalised with the new interest created by computers.

Computer graphics, Desk Top Video, Desk Top Publishing, and Multimedia are also areas being investigated and taught by innovative teachers.

"Spread the practise" is what Gareth advises. He has been passing on experiences learned at other schools and encourages teachers to help each other. Commodore are also in the process of setting up centres of excellence within schools. These schools, which will be

approved, will assist surrounding schools and offer guidance, in return Commodore will help them.

Teachers are also becoming caught up in their interest of the Amiga, and many are purchasing them personally. At home they can

learn more and also use it to form their worksheets and for many other purposes.

Kids, too, can gain an interest and the Amiga A500 while not accessible to everyone is by no means an expensive computer. Gareth Earnshaw has frequent experience of kids being so engrossed that they continued their studies/projects at home on their own Amigas. Many schoolchildren, especially fifth and sixth formers, who already own Amigas could probably offer assistance in setting up a project - and learn from their own experiences too!

Commodore has selected the Regional Support Executives like Gareth Earnshaw because they not only can demonstrate the qualities of the Amiga but also understand the needs of the teachers and children who will use them. As Gareth Earnshaw says they don't need to sell the Amiga, it sells itself by what it can do in the classroom and outside.

P.K.

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# Amiga Answers

Andy Eskelson searches out the answers to your tough technical questions

**Dear AUI,**

I would be grateful if you could answer my queries.

I am thinking about purchasing an Amiga and I am confused on several points.

Could you give me some information on the Class of the 90s pack.

What is the difference between an A500 and the 1Meg version?

I wondered if you had any news on the new emulator for the BBC and whether it would respond to \*FX commands. Also how do you load up 5.25 inch disks onto the Amiga from an external drive?

Is it possible to transfer the memory from 5.25 disks onto 3.5 disks.

Finally do you know if the BBC 5.25 disk MICRO MATHS would work on the Amigas BBC Emulator program.

**Mark Buffery,  
Beverly,  
Worcester**

**Dear Mark,**

The Class of the 90s pack is an A500 with some software bundled with it. There have been several packs, the Business pack and the Batman pack, and the Flight of Fantasy pack all come to mind. However, we reviewed the Class of the 90's in **AUI** May 1990. Keep an eye on the offers as you can pick up a bargain. There is also a 'First Step' variation of the pack for younger children.

The 1 meg A500 could mean one of two things. It could be that it has the extra 1/2 meg of ram fitted in the trapdoor. It could also mean that it has the new chipset allowing the custom chips access to more memory. It could mean both. All new Amigas use the new chipset anyway, so keep a careful eye on what you get.

We understand there is a new BBC emulator under development and should be released in late spring, however NO emulator is perfect, the old one responded to some FX commands anyway but what the new one will do we will have to wait and see.

There are external 5.25 drives available for the Amiga, and it is not too hard to get them running on the A500, They could be made to read BBC disks, but whether the

BBC emulator will support them is another matter.

You can transfer data from one disk to another very easily. If the Amiga can read the data then it is as simple as COPY DF0:progname TO DF1: if it is a BBC program it might have problems if it does direct disk access, but that is true for any emulator.

I have stated in the past that there is no such thing as the perfect emulator, especially the software versions, so don't expect miracles.

As for Micro Maths, sorry but the only way to tell if it will run is to try.

**Dear AUI,**

I am currently studying COMAL in school and would like as an Amiga owner, to be able to use this language in the home. In the recent issue of **AUI** your article said that it was possible to obtain a copy of the language lacking the SAVE, ENTER and MERGE commands. Is it possible to obtain a copy with all the commands?

**Julian Angus,  
Fife**

**Dear Juian,**

I assume that your letter is addressed to Brian Grainger, however the answer is yes, you can get the full package from Denmark, with a Danish manual. It will cost about £100 and you can get it from UniComal A/S Tvaermarksvej 19, 2860 Soborg, Denmark

You will find this information in the Jan 90 issue of the ICPUG newsletter... you have read it haven't you??? (clue page 17 line 11 word 5)

**Dear AUI,**

Is it at all possible by using a modem either to credit figures to somebody else's telephone account or, to use a phone through another line. I am writing this letter after receiving an extraordinarily high phone bill and itemization sheet crediting me with calls that have not been made with my equipment. B.T. maintain that they could only have been made through my equipment

**T Mullan,  
Bunagy, Suffolk**

**Dear T Mullan,**

Generally B.T. are correct in their statements. The first thing to do is find out to whom the high call charges were made to.. dial the number and ask..

If you have a modem connected to the line, then there is another possibility. If the modem miss-dials and does not disconnect then this can clock up massive phone bills. Check your modem.

If some rewiring has been done, it might be possible for another subscriber to be connected to your line, but not normally at the same time as your own phone, you would have had a very crossed line effect then.

It is possible for B.T. to over ride the call charges on their equipment but that is not done very often, and if it is it is only for test purposes. I occasionally see a few test units added

to my bill and the final total is adjusted to remove them.

**Dear AUI,**

Would you please help me. I would dearly love to buy a printer to go with my Amiga 500, I have read about a few but have never seen any printouts of graphics or text, and I do not want to part with a large amount of cash without some sound advice. The two printers I have in mind are the Star XB24-10 and the HP Deskjet Plus. My worry with the Star is that it cannot print adjacent dots in the 360dpi resolution. Will this affect graphics? My worry with the HP is, will I have to buy special paper? I also wish to know the cost of ribbons for the Star and the cartridge for the HP.

**S Rollinson,  
Burmantolfs,  
Leeds**

**Dear S Rollinson,**

Both the printers that you mention are very good from the reports. The best advice is to go and LOOK at them and get a demo. The HP will work with good photocopy paper, but as always best results are obtained with the correct paper.

The HP cartridge is about £22 and the star about £11.

The adjacent dot problem is not really that much of a problem, the pins cover the area concerned anyway and for graphics use I have never found it a problem. But to repeat myself go and LOOK first then buy.

**Dear AUI,**

I am writing concerning the method of testing the IntuiMessage queue to see whether it is empty. As described in November's Amiga answers I believe a different method is possible. However as I have not actually tried it, it could be a load of rubbish.

The method uses the timer device to generate messages to a separate port twice a second. You can then wait for signals for messages from either the timer port or the IDCMP and take the appropriate action depending on which signal is set.

The disadvantage of this method is that it requires more coding. The advantages are that I thought of it and the IntuiMessage will be



detected as soon as it arrives. With your method you can only test for a message about twice a second.

**M. Helliwell,  
Camberley,  
Surrey**

**Dear M. Helliwell,**

*Hmm, I don't recall that code at all... probably because I did not write it, I'll have to ask where that code came from.*

*Still I agree that it is a bit of a messy way to do things. I have just read the RKM Libs and devices (the new version) and it says on page 136, a window with an unsatisfied requester is not blocked for program output, nothing stops your program writing to the window.*

*That seems to me to be the clue to this type of problem, however Intuition is a massive software base and there are likely to be many answers to several problems. There seems to be a reasonable example on page 169 that could have the code that is activated twice a second inserted into the while ( !done ) loop near the bottom of the example.*

*Your idea is valid, as well and you SHOULD use the timer device to remain independent of processor speeds and types, You could also launch a sub task that shared the IDCMP, many ways to do the same thing.*

**Dear AUI,**

My question is very short and sweet and will not take up too much room in **AUI**. There are two good PC emulators for the A500, the KCS PC Power Board and the Vortex AT once Amiga emulator.

Please could you tell me which one is the best i.e. the fastest. Which runs most PC software and which is best value for money, or is there an emulator better than these? Your answer could help me make the right decision.

**Dave Williams,  
Preston,  
Lancs.**

**Dear Dave,**

*I have never seen the Vortex effort, so I cannot comment on it. The KCS units seem to be very good, but it is still far to early to comment on the stability of either unit, however I have not heard any bad remarks as yet.*

*Both units should run most software, but as always there will be occasions when they MIGHT fall over, you have to take that chance with any emulator.*

*A better emulator would be a PC! But ask yourself why do you want a PC? If it is just for the odd bit of WP from the office that you want to type up at home then anything will do, just port the job to the Amiga side and use the Amiga software and when on port the ASCII file back the the PC side.*

*It is also worth noting that both units use the 3.5 inch Amiga drives. These are still nowhere near as common as the 5.25 inch drives that most PCs use. This is changing but it will take a few years yet before 5.25 is dead. ( I still know systems happily using 8 inch disks )*

**Dear AUI,**

Please could you help me as I am in need of your expert advice, I have recently purchased an Amiga 500, and I need advice on the best path to take to become a graphical games computer programmer hopefully in the near future working for a software house.

Also which language would you recommend me to learn 'C' or assembler. Are there any books and software you would recommend to help me in my studies.

**P.J.Martin,  
Swindon,  
Wiltshire**

**Dear P.J.Martin**

*Wow, that's a loaded question...*

*It is also impossible to answer as it is so dependent on you. You can look forward to about 5 to 10 years of hard work and study depending on how good you turn out to be.*

*You will need to learn Assembler, and C, and probably quite a few others as well. Almost all games are programmed in assembler for speed.*

*Books, read everything in sight and remember it. If you are talking about the Amiga, then The Rom Kernal Manuals are a must, as are several of the Abacus books.*

*Software: DevPac, ArgAsm, Lattice C, Amos, Photon Paint are all very good tools in your kit, but you will find out what you really need as you progress with your studies. A games programmer has to be a jack-of-all-trades and MUST be able to work with other programmers. Many projects are simply too big to be programmed by one person.*

*The standard of documentation that you employ must be VERY high, each routine must be documented so that ANYONE can understand what is going on. For anyone, you can read yourself six months after you wrote the code!*

*You will have to prove yourself in the field. No software house will let you in without some very, very good examples of your work.*

*It is a hard world to get into, but I can only wish you the very best of luck and every success.*

**Dear AUI,**

I am writing to reply to Andrew O'Rourke's letter (January 1991) regarding the Xerox 4030 laser printer.

I am lucky enough to own one of these printers and can put Andrew's mind at rest - it is an exceptionally good printer which has only let me down (as you suggested) by bad software.

The most important thing for Andrew to do is immediately purchase an additional 1 Meg of memory for the printer. The 1 Meg which is installed has proved insufficient for printing a full page of graphics. 2 Megs is perfectly adequate for this function.

Secondly, when printing text, in anything other than the resident fonts, you are in

the hands of the software. Most of the current Amiga software seems to ignore laser printers and output on bitmap fonts only. A notable exception is Professional Page, which uses Compugraphic fonts for truly stunning output.

As far as graphics are concerned, there is the same problem. Most graphic output is, once more, bitmap, but Profesional Page comes to the rescue again with a sister package Pro Draw, which provides true structured clip art - goodbye jagged lines! I have also managed to get hold of a package called ProClips which has a number of pre-defined structured clip art drawings which can be used with Pro Page.

Thirdly, the Xerox 4030 is capable of accepting additional font cartridges to allow fancy fonts from any of the Amiga programs.

**Steve Calkin,  
Essex**

**Dear AUI,**

I am considering buying the Okimate 20 colour printer for my A500.

I wondered if you could send me some more information on it and answer some of my questions.

How much do the ribbons cost?

How much do repairs cost?

What word processors and graphics packages will it support?

**Jonathan Watkins,  
Newton S. Wales**

**Dear Jonathan**

*The Okimate 20 is a vary nice printer indeed. It has many features and of course it will print in colour. There is a full review of this printer in the April 1988 issue of **AUI** and repeated in Vol 4 Num 6.*

*Ribbons cost about £6 for the black ribbon and about £6.50 for the colour. Page for page the Oki 20 is NOT a very economic printer, but it does have one feature that might be useful. As it is a thermal printer, heat sensitive paper can be used with the ribbon removed completely, this can help save printing costs.*

*How much do repairs cost?... well about as long as a piece of string?... impossible to say, very much depends on what has gone wrong. Don't expect to pay less than £35 PLUS parts.*

*This printer does NOT support any wordprocessor, or paint package. Don't worry, neither does any other printer for that matter. It is the function of the printer driver which determines if a particular printer can be used with a package.*

*Many packages have their own driver configuration files, if so then you can customise the driver to work with the printer, sometimes the printer is limited by the package. This printer will work with Photon and DPaint, it should work with Kindwords, but that program can be a bit touchy, some users find that it works well, others find no end of problems with it.*



## WRITE TO REPLY

*This is where you get your chance to speak  
— or write — your mind about what's bugging  
you — or your computer. Bud Vennos fields the  
bouquets and the brickbats.*



Dear AUI,

In Newsfile February 1991, Page 12, I was amazed to read about the smallest disk drive in the world. On focusing on the accompanying picture I was under the impression that this was of a printer. However, who am I to disagree. Would someone please tell me where the disk is inserted? Does the wheel on the casing replace the drive mechanism? Does the switch on top flip compatibility between Amiga and MSDOS disks? etc., etc..

**Joyce Joiner,  
Birmingham**



Dear AUI,

While reading the same page as my wife, Joyce, I was intrigued by the article on Citizen's Budget 24. As we, Joyce and I, are contemplating buying a printer for use with our Amiga. The photograph of the printer left me perplexed. If companies are going to sell unfinished, and unattractive, printers, which I also assume are dangerous, no wonder they can offer them at budget prices. Why don't the just supply the components and let DIY companies market their goods? By looking at the picture of the printer, they'd be just as well to do so.

**Arthur Joiner,  
Birmingham**

Dear Joyce and Arthur,

You seem to be the unfortunate victims of our accidental error. The pictures you mentioned were mixed up at our repro-house, and, both being Citizen products,

someone couldn't distinguish which was the disk-drive, and which was the printer. As compensation for your joint distress we have decided to award you with, not one, but two star letter awards for grief above and beyond the call of active duty. Also as a special bonus you may have noticed our in-depth test-drive of the drive, or was that the printer?

Dear AUI,

In October of last year I carried out the best decision I have made in a long while, I purchased an Amiga A500. The very next day I bought the November issue of **AUI** (another good decision), in which I noticed the OKIMATE 20 Colour Printer offer.

I have since purchased a number of P.D. and commercial programs and am now much more interested in buying a colour printer. A friend also has an Amiga A500 with an Epsom mono printer and recommends that I buy one too, as it is compatible with my collection of P.D. programs as well as DPaint II and Photon Paint II.

However, he has paid £220 for his Epsom and your price offer of under £160 (inc. VAT+P&P) is more than tempting. Before I buy, could you please set my mind at rest and inform me whether the Okimate is compatible with these.

**Adrian Bussey,  
Norfolk**

Dear Adrian,

Firstly, the offer which was made in AUI's November issue is no longer available. This was due to the overwhelming demand and subsequently they are sold-out.

The supplier of the printer was the only UK distributor, so I am unsure whether you will be able to find one from them, but you could try phoning some advertisers in **AUI** for help.

The Okimate 20 colour printer is a very good printer, and its compatibility with software packages depends on the printer driver. No driver was supplied with the printer, but Amiga Answers have been helping the owners of the printers to get on-line.

The Epsoms, and compatibles, are very good printers and use impact rather than heat transfer output. They are, therefore, less expensive to maintain. January's AUI

contains a review of the Star LC-200 Colour printer.

Dear AUI,

After receiving an Amiga at Christmas I went out and bought a few choice Amiga orientated magazines. On first impression I was not impressed with **AUI**, but I bought it anyway. Games, games, and more games is what most of the magazines seemed to cover, all except two - **AUI**, and Amiga Format (you can't say that here - Ed.). AF was bigger, had a coverdisk, and catered for the beginner, **AUI** covered more topical, and interesting issues.

I counted the pages of the magazines that I liked best and was pretty amazed at my findings:

Publication	Total pgs	Edit.pgs
Amiga User Int.	124	71
Amiga Format	202	71
CU Amiga	140	62

I also found the editorial and grammar in these magazines to be of a higher standard than that of other publications. However, there are several small, and silly, mistakes made in all of the publications. Why is this?

I found the news in **AUI** to be interesting, and as mentioned in The Amiga Dimension it reflects what is happening today. The other topics covered were done so with intelligence, authoritiveness, and a respect for the readers understanding of the subject. I congratulate you on your achievements.

**Jack Lewis,  
Portsmouth**

Dear Jack,

Welcome to the Amiga scene, and good luck in your quest to find out which magazine is best for you. We would never try to dictate which magazine you should buy, each offers something different and when readers know what they want they will read it.

**AUI** is the longest established Amiga magazine and as such has developed a wide understanding of the interests of all Amiga users, new and old. Our contributors are expert in their own fields, and many top Amiga journalists have started their writing careers at **AUI**. Contributors write in their own style, and not one dictated by **AUI**, so that each article is as fresh, interesting, and topical, as the next.

Mistakes always seem to happen when you expect them least. All that we can do to minimise them is to find out why they occurred and try to stop them happening again.

Your magazine page breakdown is not surprising in the least. **AUI** maintains a good editorial/advertising ratio, but aren't you forgetting the free 16 page supplement (equivalent to 8 more editorial pages)?

**That's all we have space for in this issue of AUI, but tune in next month for more readers' Write To Reply.**



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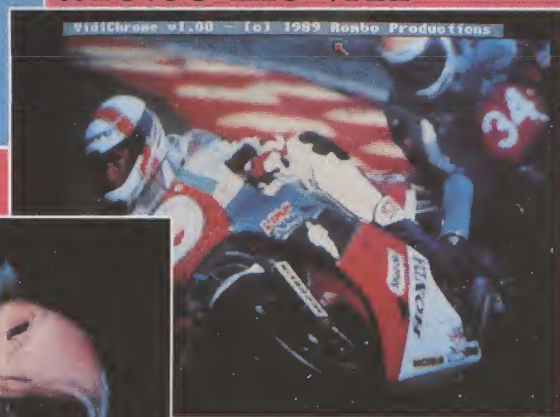
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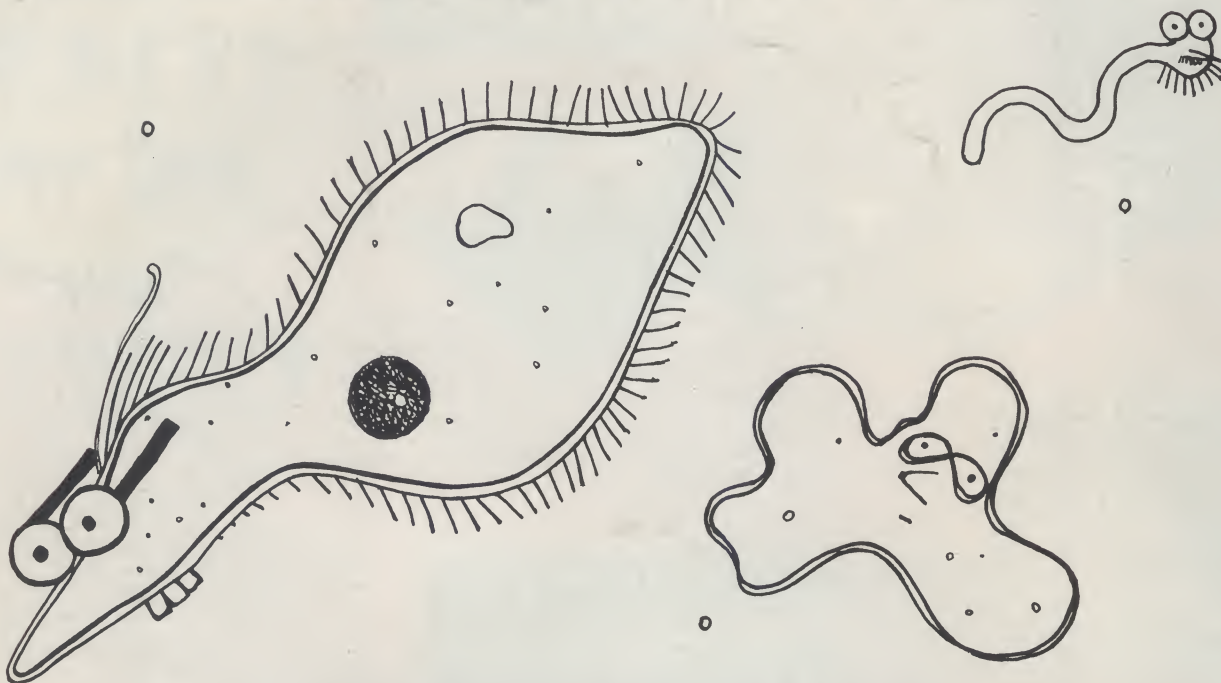
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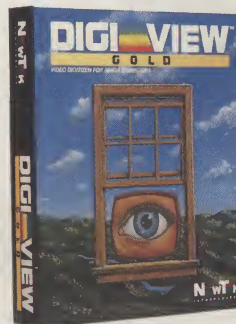
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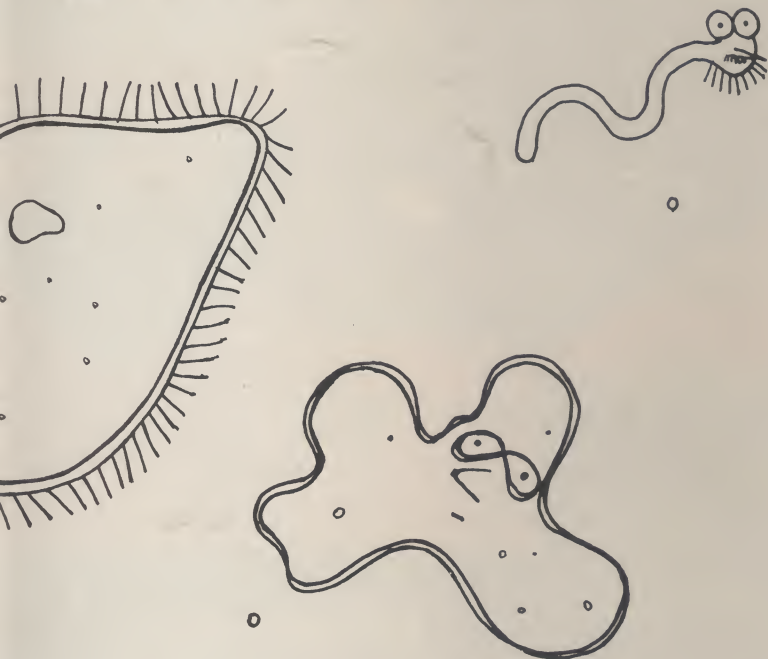
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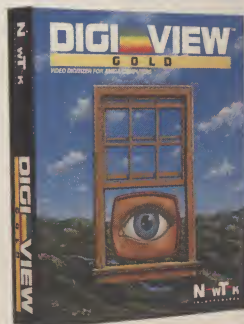
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**MARCH 1991**

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